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ABSTRACT

The study investigated the diffusion of innovative farming practices from Rapid Adjustment Farms (RAF) to other farms in southeast Ohio. The RAF program, begun in 1968, introduced new technology and management practices to its participant farmers. After reviewing literature of farming programs' information diffusion, a descriptive survey was made of Rapid Adjustment farmers, county extension agents, and other farmers in the RAF area. Three dairy farms of similar tenure in the program were selected from more than 20 RAFs. A stratified random sample was drawn of 30 dairy farmers in each of three counties, with alternative farms also selected by random number. The 90 respondent farmers were asked whether they: (1) viewed the Rapid Adjustment farmer as an opinion leader; (2) adopted RAF practices, and for how long; and (3) knew the Rapid Adjustment farmer, and in what way. The respondent farmers also gave information about themselves and their farming operations. The interview schedule was pretested in June 1974 and administered in August 1974. Major findings and conclusions of the study are presented, along with recommendations for future RAF administrative decisions. Fifty-three tables give respondents' answers to questions on the interview schedule, often with county breakdowns and statistical analysis of the data. Appendixes contain some of the tables and the interview schedule. A bibliography of materials on diffusion research is included. (SD)

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THE RAPID ADJUSTMENT FARM PROGRAM'S INFLUENCE ON OTHER FARMS IN THE COMMUNITY

A THESIS

Presented in Partial Fulfillment of the Requirements
for the Degree Master of Science

By

Kenneth D. Simeral, B.S.

The Ohio State University
1974

Approved by

Adviser
Department of Agricultural
Education

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TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	v
CHAPTER	
I. THE SETTING AND STUDY PROBLEM	1
Background	1
Statement of Problem	2
Need for the Study	2
Specific Objectives	6
II. REVIEW OF LITERATURE	9
Influence of Demonstrational Farm Programs	9
Characteristics of the Diffusion Process	13
Characteristics of the Demonstration	14
Characteristics of the Audience	17
Characteristics of the Social Milieu	19
Summary	20
III. METHODOLOGY	22
Design	22
Population and Sample	23
Instrumentation	24
Pretesting the Interview Schedule	27
Collection of Data	28
Analysis of Data	29
IV. FINDINGS OF RESEARCH	32
Characteristics of the Rapid Adjustment Farmer	32
Characteristics of the Respondent Farmer	34
Adoption of Practices	37
Relationship Between Adoption and Knowledge of Rapid Adjustment Farm	44
Opportunities for Awareness of Rapid Adjustment Farm Program	46
Opinion Leadership and its Relationship to Adoption	49
Relationship Between Percent of Adoption of Practices and Variables among Respondent Farmers	52

Characteristics of Those Respondent Farmers Seeing Rapid Adjustment Farm Practices as Practical . . 62
Characteristics of Those Respondent Farmers That Have Received Ideas From the Rapid Adjustment Farm 76
Relationship of Respondent Thinking Practices Are Practical and Who Received Ideas with Respondent Being in Similar Groups with Rapid Adjustment Farmer 84

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS 87

Background and Setting 87
Statement of the Problem 87
Need for the Study 87
Specific Objectives 88
Methodology 90
Major Findings 92
Conclusions 101
Recommendations 104

APPENDIXES 106

A. OTHER TABLES 107

B. RESEARCH MATERIALS 110

Interview Schedule 111
Respondent Card 116
Letter Introducing Interviewer 117
Letter About the Study 118

BIBLIOGRAPHY 119

LIST OF TABLES

Table		Page
1	CHARACTERISTICS OF THE RAPID ADJUSTMENT FARM	33
2	CHARACTERISTICS OF RESPONDENT FARM	34
3	ADOPTION BY OTHER FARMERS OF SELECTED RAPID ADJUSTMENT FARM PRACTICES IN THE THREE COUNTIES	36
4	ADOPTION BY OTHER FARMERS OF SELECTED RAPID ADJUSTMENT FARM PRACTICES BY INDIVIDUAL COUNTIES	39
5	TRIAL OR ADOPTION OF PRACTICE SINCE 1970	41
6	TOTAL NUMBER OF PRACTICES ADOPTED BY RESPONDENTS	43
7	ADOPTION OF PRACTICES BY COUNTY	44
8	ADOPTION OF PRACTICES IN RELATIONSHIP TO KNOWLEDGE OF RAPID ADJUSTMENT FARM	44
9	ADOPTION OF PRACTICES IN RELATION TO KNOWLEDGE OF RAPID ADJUSTMENT FARM BY COUNTY	45
10	RELATIONSHIP OF MASS MEDIA COVERAGE OF RAPID ADJUSTMENT FARM PROGRAM WITH AWARENESS OF THE RAPID ADJUSTMENT FARM	46
11	RELATIONSHIP OF ADOPTION OF PRACTICES TO OBSERVABILITY FROM COMMUNITY TRAVELED HIGHWAY	48
12	RELATIONSHIP OF FREQUENCY OF DRIVING BY THE RAPID ADJUSTMENT FARM WITH THE COUNTY	49
13	OPINION LEADERSHIP OF RAPID ADJUSTMENT FARMER AS PERCEIVED BY RESPONDENT FARMERS	50
14	RELATIONSHIP OF ADOPTION OF PRACTICES TO OPINION LEADERSHIP OF RAPID ADJUSTMENT FARMER	51
15	RELATIONSHIP OF ADOPTION OF PRACTICE TO MILES RESPONDENT'S FARM IS FROM RAPID ADJUSTMENT FARM	52
16	RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT HAVING BEEN ON RAPID ADJUSTMENT FARM	53

17 RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT HAVING BEEN ON RAPID ADJUSTMENT FARM (BY COUNTY) 54

18 RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT WHO KNEW THE RAPID ADJUSTMENT FARMER, BEING A PERSONAL FRIEND OF THE RAPID ADJUSTMENT FARMER 55

19 RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT WHO KNEW THE RAPID ADJUSTMENT FARMER, BEING A PERSONAL FRIEND OF THE RAPID ADJUSTMENT FARMER (BY COUNTY) 55

20 RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT BEING IN COUNTY OR COMMUNITY GROUPS WITH RAPID ADJUSTMENT FARMER 56

21 RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT BEING IN COUNTY OR COMMUNITY GROUPS WITH THE RAPID ADJUSTMENT FARMER (BY COUNTY) 57

22 RELATIONSHIP OF ADOPTION OF PRACTICES WITH SIZE OF RESPONDENT FARM 58

23 RELATIONSHIP OF ADOPTION OF PRACTICES WITH THE NUMBER OF DAIRY COWS OF THE RESPONDENT 58

24 RELATIONSHIP OF ADOPTION OF PRACTICES WITH THE NUMBER OF REPLACEMENT HEIFERS OF THE RESPONDENT 59

25 RELATIONSHIP OF ADOPTION OF PRACTICES WITH GRADE OF MILK THE RESPONDENT PRODUCES 59

26 RESPONDENTS' VIEWS OF PRACTICALITY OF RAPID ADJUSTMENT FARM PRACTICES ON THEIR OWN FARMS 62

27 RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL ON THEIR FARMS TO ADOPTION SCORE 63

28 RELATIONSHIP OF THOSE SEEING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO THOSE WHO VIEWED RAPID ADJUSTMENT FARMER AS AN OPINION LEADER 64

29 RELATIONSHIP OF THOSE SEEING RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL BY THE DISTANCE RESPONDENT IS FROM RAPID ADJUSTMENT FARM 66

30 RELATIONSHIP OF THOSE SEEING RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO THE FREQUENCY OF RESPONDENT DRIVING BY THE RAPID ADJUSTMENT FARM 67

31 RELATIONSHIP OF FRIENDSHIP TO RESPONDENT VIEWING PRACTICES AS PRACTICAL 68

32 RELATIONSHIP OF FRIENDSHIP TO RESPONDENT VIEWING RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL (BY COUNTY) 69

33 RELATIONSHIP OF THOSE SEEING RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO THOSE HAVING BEEN ON THE RAPID ADJUSTMENT FARM 70

34 RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO THOSE HAVING BEEN ON RAPID ADJUSTMENT FARM (BY COUNTY) 72

35 RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO AGE OF RESPONDENT FARMER . 73

36 RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL BY GRADE OF MILK RESPONDENT PRODUCES 73

37 RELATIONSHIP OF THOSE SEEING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL BY NUMBER OF DAIRY COWS OF RESPONDENT 74

38 RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL BY SIZE OF RESPONDENT FARM . . 74

39 IDEAS RECEIVED FROM THE RAPID ADJUSTMENT FARM BY FARMER WHO KNEW THE RAPID ADJUSTMENT PROGRAM 77

40 ADOPTION OF PRACTICES IN RELATION TO RESPONDENT HAVING GOTTEN IDEAS FROM THE RAPID ADJUSTMENT FARM 78

41 RELATIONSHIP OF THOSE LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO RESPONDENT SEEING RAPID ADJUSTMENT FARMER AS AN OPINION LEADER 79

42 RELATIONSHIP OF THOSE HAVING LEARNED IDEAS FROM THE RAPID ADJUSTMENT FARM TO FREQUENCY OF RESPONDENT DRIVING BY RAPID ADJUSTMENT FARM 80

43 RELATIONSHIP OF THOSE HAVING LEARNED IDEAS FROM THE RAPID ADJUSTMENT FARM TO RESPONDENT HAVING BEEN ON THE RAPID ADJUSTMENT FARM 81

44 RELATIONSHIP OF FRIENDSHIP TO RESPONDENT HAVING GOTTEN IDEAS FROM RAPID ADJUSTMENT FARMER 82

45 RELATIONSHIP OF FRIENDSHIP TO RESPONDENT HAVING GOTTEN IDEAS FROM RAPID ADJUSTMENT FARMER (BY COUNTY) . . . 82

46 RELATIONSHIP OF RESPONDENT FARMER HAVING GOTTEN IDEAS FROM RAPID ADJUSTMENT FARM WITH RESPONDENT BEING IN SIMILAR GROUPS WITH RAPID ADJUSTMENT FARMER (BY COUNTY) . . 84

47 RELATIONSHIP OF RESPONDENT FARMER SEEING RAPID ADJUSTMENT FARM PRACTICES PRACTICAL WITH RESPONDENT BEING IN SIMILAR GROUP WITH RAPID ADJUSTMENT FARMER (COUNTY C) 85

48 MASS MEDIA COVERAGE OF RAPID ADJUSTMENT FARM BY INDIVIDUAL COUNTY 107

49 TOURS AND EDUCATIONAL EVENTS HELD ON RAPID ADJUSTMENT FARM 107

50 RELATIONSHIP OF RESPONDENT LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO SIZE OF RESPONDENT FARM 108

51 RELATIONSHIP OF RESPONDENT LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO NUMBER OF DAIRY COWS RESPONDENT HAS . . 108

52 RELATIONSHIP OF RESPONDENT LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO AGE OF RESPONDENT FARMER 109

53 RELATIONSHIP OF RESPONDENT LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO GRADE OF MILK HE PRODUCES 109

CHAPTER I

THE SETTING AND STUDY PROBLEM

Background

The diffusion of technology has been for many years a concern of change agencies and change agents. They are constantly inquiring of how new technology can best be communicated to their clientele, and what methods of communication will most likely assist their clientele adopt this technology.

During the past six years, the Ohio Cooperative Extension Service, in cooperation with the Tennessee Valley Authority and local supporting agencies, has sponsored a Rapid Adjustment Farm Program in Southeast Ohio. This program is now spreading to other parts of the state, and from all indications will continue to grow.[1]

The purposes of the program are manifold and much broader than just the rapid adjustment of the farm enterprise of the farm family involved. The seven major purposes are as follows:[2]

1. To assist selected young farm cooperators in setting family goals and to help them to expand their farm operations.

2. To increase crop yields through improved soil fertility and cultural practices. This includes increased use of recommended amounts of fertilizer, lime, seeds, and chemicals.

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[1]Rapid Adjustment Farms in Ohio (Bulletin L-215; Cooperative Extension Service, The Ohio State University)

[2]Ibid.

3. To improve livestock production by selecting quality breeding stock and adopting sound management practices.

4. To combine and utilize available farm resources that will return maximum income.

5. To assist Extension, Teaching and Research faculty members in keeping abreast of on-the-farm problems.

6. To demonstrate to neighboring farms, as well as business, industry, political and civic leaders that applying modern technology to farming pays dividends.

7. To increase the wealth from farming in local communities and to stimulate the growth of the communities.

This study is primarily concerned with the relative effectiveness of the Rapid Adjustment Farm in Southeast Ohio as a means or device for transferring technology and management practices to other farmers in the community and to identify the variables related to this transfer. Another outcome of the study should be the identification of the characteristics of the farmers who are observing the Rapid Adjustment Program.

Statement of the Problem

The major problem to be investigated in this study was this: Is the Rapid Adjustment Farm Program effective as a means of diffusing technology and management practices to other farmers in the community?

Need for the Study

Since the Rapid Adjustment Farm Program came into existence in Ohio in 1968, it has been shown to be an effective tool in helping the individual farmer on the program move from a state of low income caused by poor management practices to a higher income with a much

improved farm enterprise. This is revealed by studying the individual reports of each Rapid Adjustment Farm and comparing income and net worth statements. Some farms have increased tenfold in net income within five years. This information has been compiled yearly by the Assistant Director, Agriculture Industry, Cooperative Extension Service. No research has been done in Ohio to show how much spinoff or diffusion of technology and management practices occurs from the Rapid Adjustment Farm to other farmers in the community.

The Rapid Adjustment Farm may be thought of as a large scale demonstrational program. Demonstrations have long been recognized as a teaching method to encourage the adoption of farm innovation. The Extension Service conducted farm demonstrations as early as 1904, and Extension personnel make considerable use of the demonstrational method today. However, according to Everett Rogers and Eugene Havens, "little is actually known about the effectiveness of demonstrations in securing adoption and in changing farmers' attitudes."[3]

Some extension educators have begun to distrust their time-tested method of working with the innovative farmer in communities. According to L. C. Paul, the "theory of working with the innovator and then letting it filter down seems to no longer apply because of the competitive nature of the farming enterprise."[4] Therefore, the extension agent must look to other instruments to help with the education process.

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[3]Everett M. Rogers and A. Eugene Havens, The Impact of Demonstration on Farmers' Attitudes Toward Fertilizer. Research Bulletin 896: Ohio Agriculture Experiment Station, Wooster, Ohio Dec. 1961, p. 5.

[4]L. C. Paul, "Is the Innovator Dead?" Journal of Extension, III, No. 5 (Spring, 1970), p. 6.

The Rapid Adjustment Farm Program has been effective in increasing the size of the farm operation and the gross and net farm income of the individual Rapid Adjustment Farm Family. For this reason the program will probably be expanded. We also need to know, however, how effective it is as an educational tool with other farmers in the community.

The criteria used in selecting a potential rapid adjustment farmer are designed to help insure a successful Rapid Adjustment Farm. These criteria include the following:

1. Attitude of farmer and his family toward cooperation and change.

   a. Attitude toward identifying and striving for family goals:

      Do goals imply economic growth?
      Do goals reflect educational improvement?
      Are goals challenging?
      Do goals reflect participation in community activities?

   b. Attitude toward using credit wisely - will they borrow money to put the program into effect if necessary to meet:

      Family needs
      Production costs
      Capital investment requirements

   c. Ability to withstand pressure resulting from using credit wisely and making management decisions.

   d. Attitude toward accepting success and failure.

   e. Willingness to cooperate fully in meeting program goals.

   f. Willingness to keep and share records with cooperating agencies and groups including those who are providing consulting services.

2. Farmer's past history indicates he will accept advice, counsel, and management information.

3. Farmer's age below 40 years with preference to be given to younger potential participants.

4. A full time farmer or potential to become one in five years.

5. Owner who will have control of land, labor, capital, and management decisions for at least five years or if it is a tenant operation the landlord is willing to sign the agreement and agree to make necessary capital investments and provide tenure for the duration of the program.

6. A farm that is typical of the area.

7. A farm that has the potential for being an economical unit - including land resources.

8. A farm with adequate labor supply available.

9. A healthy family.

10. Farmer with potential capacity to make necessary management decisions.

11. Farm that is readily accessible to people.

12. Present level of farm operation in line with the average level in community.

As can be seen from this list of criteria for selecting Rapid Adjustment Farms, few have anything to do with the effectiveness of the farm as a teaching device. Perhaps other criteria need to be incorporated to help make that farm a more useful teaching tool and to play a larger role in the diffusion of technology and management practices. If those variables that can be manipulated by extension agents (such as type of farm or farmer or location of farm) either at the time of selecting the farm or by the method of working with the farmer can be identified, then this can be a real help in selecting future Rapid Adjustment Farms, to be used as teaching devices.

The need can be summarized by the following statements:

1. Need to determine if spinoff of technology and management practices is occurring so that future direction can be given to the program for expansion and funding.
2. Need to determine characteristics of the Rapid Adjustment Farm or Farm Cooperator which would best help in the diffusion of technology and management practices to other farmers.

Specific Objectives

1. What is the percentage of adoption of specific practices, applied on the Rapid Adjustment Farm, on other farms in the community?
2. What is the relationship of the percentage of adoption with the respondent's awareness and knowledge of the Rapid Adjustment Farm?
3. What is the relationship between the percentage of adoption of the specific practice applied on the Rapid Adjustment Farm and the following variables among the Rapid Adjustment Farms used in the study?
   a. Rapid Adjustment Farm observability from a community-traveled highway.
   b. Rapid Adjustment Farmer being an opinion leader in the community (as seen by other farmers).
   c. The amount of mass media coverage of the Rapid Adjustment Farm and the number of tours and educational events held there.
4. What is the relationship between the percentage of adoption of specific practices applied on the Rapid Adjustment Farm and the

following variables among respondent farmers?

a. Proximity of respondent to Rapid Adjustment Farm.

b. Respondent having been on the Rapid Adjustment Farm.

c. Number of community groups to which respondent and Rapid Adjustment Farmer both belong.

d. Respondent being a personal friend of Rapid Adjustment Farmer.

e. Size and scope of respondent farm similar to Rapid Adjustment Farm.

5. What is the relationship between respondent farmers viewing practices carried out on the Rapid Adjustment Farm as practical on their own farms and the following variables?

a. Rapid Adjustment Farmer being an opinion leader in the community (as seen by other farmers).

b. Proximity of respondent to Rapid Adjustment Farm.

c. Number of community groups to which respondent and Rapid Adjustment Farmer both belong.

d. Respondent being a personal friend of Rapid Adjustment Farmer.

e. Size and scope of respondent farm similar to Rapid Adjustment Farm.

f. Respondent having been on Rapid Adjustment Farm.

g. Observability of Rapid Adjustment Farm from a community traveled highway.

6. What is the relationship between respondent having gotten ideas from the Rapid Adjustment Farm and the following variables?

a. Rapid Adjustment Farmer being an opinion leader in the

community (as seen by other farmers).

b. Proximity of respondent to Rapid Adjustment Farm.

c. Number of community groups to which respondent and Rapid Adjustment Farmer both belong.

d. Respondent being a personal friend of Rapid Adjustment Farmer.

e. Size and scope of respondent farm similar to Rapid Adjustment Farm.

f. Respondent having been on Rapid Adjustment Farm.

g. Observability of Rapid Adjustment Farm from a community traveled highway.

CHAPTER II

REVIEW OF LITERATURE

There has been a great amount of research and many theories developed concerning the diffusion of innovation and technology as well as considerable research about the diffusion process. However, this researcher has been able to find only limited research dealing with the diffusion of innovations and technology from an educational program such as the Rapid Adjustment Farm program as we know it in Ohio. The research that has been done in related areas can be divided into two general areas which are these: (1) influence of demonstration farm program; and (2) characteristics of the diffusion process. We will look at each of these areas briefly.

Influence of Demonstrational Farm Programs

A few studies have been done which attemot to study the influence of demonstration and demonstration farms on other farmers. These studies vary greatly in method and in finding.

One type of study that has been made is that of studying the demonstration farmer and farm family and the change that they make during the time of the demonstration in comparison to changes made by other farmers in the community. In 1967 Erickson and Graham paired and compared each demonstration farm in Illinois program with a nearby farm to evaluate the performance of 63 Illinois test

demonstrators.[1]

Paul C. Marsh in 1962 in "A Study of Farm and Home Development in North Carolina" contrasted the changes made by demonstration families with those made by a control group of non-participating families.[2] Both of these studies along with a few others report that the demonstrators are significantly different at the end of the program from other farmers in the surrounding neighborhood with respect to net worth, increase in annual earnings, use of sources of information and leadership participation.

There have been a few studies that have been concerned with the impact of the result-demonstration on agricultural practices in the community surrounding the demonstration farms.

Rogers and Havens in 1961 conducted a controlled experiment to determine the impact of demonstrations on farmer attitudes toward the use of fertilizer. They found that while knowledge about fertilizer increased, it was not as a result of the demonstration program.[3]

In the Erickson and Graham study a sample of neighboring farmers, local leaders, and businessmen were interviewed to obtain an evaluation of the effectiveness of the demonstration farm program in

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[1]E. E. Erickson and F. P. Graham. Making Profitable Farm Business Changes Through Education, Circular 966. University of Illinois Cooperative Extension Service, Urbana, Illinois, 1967.

[2]C. Paul Marsh. An Evaluation of the Farm and Home Approach to Agricultural Extension Work in North Carolina. Extension Evaluation Series, No. 3. North Carolina State College, Raleigh, North Carolina, 1962.

[3]Everett M. Rogers and A. Eugene Havens, The Impact of Demonstration on Farmer Attitude Toward Fertilizer, p. 23.

disseminating information.[4] One problem with their study, however, was that the names of the neighboring farmers for their sample were secured from the test demonstration farmers who provided the investigators with a list of names of other farmers in the neighborhood who they thought had been influenced by the program.

One well-designed study on the influence of the result-demonstration program was a study done by Blackmore, Dimit, and Baum. They interviewed 20 randomly-selected neighboring farmers around each of 25 test-demonstration farms. This gave them a total sample of 500 non-test demonstration farmers. They found that the average number of recommended practices adopted was related to the distance of the farmer from the nearest demonstration farm, increasing from one mile to the second-mile range, remaining fairly constant for two- to five-mile range, but declining beyond that point. Seventeen percent of the farmers interviewed indicated that they had been on a tour on the test demonstration farm and about half of those who had been on one or more tours reported having adopted a practice they saw demonstrated there. In this study, test demonstration farmers were named by 65 percent of the farmers as "other farmer" who try new practices and succeed with them.[5]

A study that attempted to evaluated the test-demonstrational farm

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[4]Erickson and Graham, op. cit.

[5]John Blackmore, R. N. Dimit, and E. L. Baum. Test Demonstration Farms and the Spread of Improved Farm Practices in Southwest Virginia, Report No. P55-3. Tennessee Valley Authority, Agricultural Economics Branch, Knoxville, Tennessee, 1955.

as a means of helping with the diffusion of innovations and technology was one done in 1970 by Joel A. Hartman and Emory J. Brown. In this study entitled "Evaluation of a Five-Year Demonstration Farm Program in Two Pennsylvania Counties," the researchers used the pre- and post-interview technique with the respondent farmers. The major objective of the study was to measure the impact of 17 demonstration farms, using the criterion of adopting selected agricultural practices by surrounding farmers. While the educational program did influence change in adoption of practices, most of the explained variance was due to extraneous factors. Personal characteristics of the farmer, his relationship with other individuals and organizations, and the level of technology of the farms largely explained the amount of change in adoption of recommended practices.[6]

In a study by Porter L. Russ entitled "A Study of Land Grant College and Tennessee Valley Authority Staffs' Perception of the Rapid Adjustment Program Concept," this researcher learned that the Tennessee Valley authority staffs view the primary objective of the Rapid Adjustment Farm Program differently than the Land Grant College staffs do. The Land Grant College staff perceived the major objective of the Rapid Adjustment Farm Program to be that of teaching the co-operators (i.e., all clientele groups), while the TVA staff perceived the major objectives of the Rapid Adjustment Program to be that of

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[6]Joel A. Hartman and Emory J. Brown. Evaluation of a Five-Year Demonstration Farm Program in Two Pennsylvania Counties. Extension Studies No. 43, The Pennsylvania State University, College of Agriculture Extension Service, 1970.

guiding resource use and testing of concepts.[7]

While all of these studies shed some light on the diffusion of technology from demonstrational farms, the Hartman and Brown study comes the closest to studying the same factors and conditions as this study was attempting to do.

Characteristics of the Diffusion Process

According to Wilfrid C. Bailey, the four factors that contribute to the potency of demonstration farm programs are these: (1) characteristics of the demonstrations, (2) characteristics of the demonstrators, (3) characteristics of the audience, and (4) characteristics of the community or the total social milieu in which the demonstration program is cast.[8] To look at these four characteristics, we must look at general diffusion literature.

Everett M. Rogers identifies four crucial elements in analysis of the diffusion of innovation: (1) the innovation, (2) its communication from one individual to another, (3) in a social system, (4) over time. The "innovation" can be viewed as an idea, abstract or concrete, and/or a behavioral practice associated with the idea.

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[7]Porter L. Russ, "A Study of Land Grant College and Tennessee Valley Authority Staff Perception of the Rapid Adjustment Program Concept." Thesis Department of Adult Education, North Carolina State University, Raleigh, North Carolina, 1964.

[8]Wilfrid C. Bailey. Mississippi Community Fertilizer Education Experiment: Final Report. Preliminary Report in Sociology and Rural Life, No. 7. Mississippi State Agricultural Experiment Station, State College, Mississippi, 1959.

"Diffusion" is the process by which the innovation spreads.[9]

In their book Communication of Innovation, Rogers and Shoemaker point out that the number of diffusion studies and writings have multiplied at an accelerated rate in the past decade and now there are well over 1,500 different authors and researchers on the subject with several more appearing every day.[10] For this reason, this researcher has relied heavily on the before-mentioned book which has done an excellent job of pulling together all of these nearly 2,000 different authors and publications. The diffusion literature will be looked at on the basis of Bailey's four factors that contribute to the potency of the demonstration farm.

Characteristics of the Demonstration (Innovation)

The characteristics of the innovation being studied is probably the reason why some innovations are adopted quite readily while others take a long time or never really do become adopted. Numerous studies list these characteristics and most all are accepted by all authors.

1. Compatibility. The more compatible the innovation is with the (a) sociocultural values and beliefs, (b) previously-introduced ideas; or (c) clientele need for the innovation, the more likely the innovation will be adopted.[11]

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[9]Everett M. Rogers, Diffusion of Innovation. New York: The Free Press of Glencoe, p. 18, 1962.

[10]Everett M. Rogers and F. Floyd Shoemaker, Communication of Innovation; New York: The Free Press, London: Collier-Macmillan, Ltd.

[11]Ibid., p. 145.

2. Simplicity. The simplier the innovation as perceived by a member of a social system, the more likely it would have a high rate of adoption.[12]

3. Trialability. The trialability of an innovation as perceived by a member of a social system is positively related to its rate of adoption.[13]

4. Observability. The observability of an innovation, as perceived by members of a social system, is positively related to its rate of adoption.[14]

5. Relative Advantage. The relative advantage of a new idea, as perceived by a member of a social system, is positively related to its rate of adoption.[15]

6. Cost and Complexity. Costly and complex practices that can be taken a little at a time will be adopted more quickly than where this is not possible.[16]

Although these are not the only characteristics of innovations which have an influence on the rate of adoption, these characteristics are generally agreed upon by most authors.

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[12]Ibid., p. 151.

[13]Ibid., p. 155.

[14]Ibid., p. 156.

[15]Ibid., p. 163.

[16]Herbert F. Lionberger. Information-seeking Habits and Characteristics of Farm Operators. Research Bulletin 581. Missouri Agricultural Experiment Station, Columbia, Missouri, 1955.

Characteristics of the Demonstrators

It is somewhat obvious that characteristics of the individual demonstration farmer would have a considerable effect upon how well the technology was accepted by the other farmers in the community. Some of the more commonly-accepter characteristics of the demonstrator that aid in the diffusion of technology are these:

1. More effective communication occurs (consequently, more adoption) when source and receiver are homophilous.[17] (Homophily is the degree to which pairs of individuals who interact are similar in certain attributes, such as beliefs, values, education, social status and the like.)

2. Homophilic diffusion patterns cause new ideas to spread horizontally rather than vertically within a system.[18]

3. Persons sought out for advice in matters related to farming are more likely to have been exposed to formal group influence than those who seek the ideas.[19]

4. The more the demonstrator is thought of as an opinion leader, the more likely he is to influence diffusion of innovation.[20] (Opinion leadership is the degree to which an individual is able to informally influence other individuals' attitudes or overt behavior in a desired way with relative frequency.) Thus our definition of opinion

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[17]Rogers and Shoemaker, op. cit., p. 14.

[18]Loc. cit.

[19]Lionberger, op. cit., p. 19.

[20]Rogers and Shoemaker, op. cit., p. 243.

leadership implied a leadership-followship relation between two or more people, rather than an abstract attribute of an individual leader.

5. When interpersonal diffusion is heterophilous, followers see opinion leaders (a) of higher social status, (b) with more education, (c) with greater mass media exposure, (d) more cosmopolite, (d) greater change agent contact, (f) more innovative, (g) greater social participation.[21] From these seven characteristics, we can see that followers tend to seek information and advice from opinion leaders who are more competent than themselves.

These characteristics are not the only ones of the demonstrator, but these are accepted by most writers.

Characteristics of the Audience (Clientele)

It is obvious that not all persons accept an innovation or new idea at the same time. For this reason most diffusion studies have focused much attention on what has become known as the adoption process within an individual. The most generally accepted stages in this process are (1) awareness, (2) interest, (3) evaluation, (4) trial, (5) adoption or rejection.[22] These are not discrete, or distinctly separated stages in the individual's adoption process. It is also questioned whether all people follow all of these steps.

Since all clientele do not move through these stages at the same rate, adoption categories have been proposed by many authors. The

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[21] Ibid., p. 213.

[22] Rogers, op. cit., pp. 148-192.

most-commonly accepted are (1) innovators, (2) early adopters, (3) early majority, (4) late majority, (5) laggards.

We will now take a look at characteristics of individuals that perhaps are related to the categories.

1. Age. The older the clientele, the more likely the client is not to adopt or to be slow in adopting. Early adopters are younger than late adopters.[23]

2. Education. Earlier adopters have more years of formal education than late adopters.[24]

3. Size of Farm. Early adopters ordinarily have larger farms and relatively higher incomes than the average in the area where they live than do late adopters.[25]

4. Competency. Early adopters display greater competency in their several endeavors than do late adopters.

5. Social Participation. Early adopters are characterized by high levels of both formal and informal participation than late adopters.[26]

6. Cosmopoliteness. Early adopters have been found to be much more cosmopolite than late adopters.[27] Rogers defines "cosmopoliteness" as "the degree to which an individual's orientation is external to a particular social system."

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[23]Ibid., p. 174.

[24]Ibid., p. 175.

[25]Lionberger, op. cit., p. 38.

[26]Rogers, op. cit., p. 176.

[27]Ibid., pp. 132-133.

These seven characteristics of the audience or clientele are among the more commonly-accepted characteristics of the clientele by most writers.

Characteristics of the Social Milieu

Behavior is a function not merely of one's own desires, needs, attitudes, and characteristic attributes, but also of the expectation, influence, and limiting characteristics of the environment, particularly that of the social milieu.[28] The differential rate of adoption among communities or geographical areas can be explained in part by these limiting factors or conditions which are characteristic of the community of social milieu. Some of these factors are these:

1. Community Values and Norms. Where the values and norms of a community are oriented toward the conservation of traditional culture, the acceptance of new ideas is considerably slower than in a community which is oriented toward change and modernization.[29]

2. Social Isolation. People isolated from communicative contact with others would be far less affected by this necessary condition for acceptance of change.[30]

3. Membership in groups. The thinking of members of the social groups both formal and informal plays an important role in the role of

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[28]Hartman and Brown, op. cit., p. 37.

[29]Talcott Parsons. The Major Points of Reference and Structural Components of the Social System. The Social System, ed. Talcott. New York: The Free Press of Glencoe. 1951.

[30]Hartman and Brown, op. cit., p. 36.

adoption of ideas by individuals within that group.

Although these are not the only characteristics of the social milieu, they are among the more important ones.

There are a couple of other important situations that we need to look at in the literature.

It is important to realize when studying the stages of the adoption process that the most effective means of communication changes with the stage in the process. Mass media channels are relatively more important at the knowledge or awareness stage, and interpersonal channels are relatively more important at the persuasion function in the innovation-decision process. (Interpersonal channels are those that involve a face-to-face exchange between two or more individuals.)

Rogers and Shoemaker also point out that too often in diffusion research, there is a theoretical oversimplification of the concept generalization. That is to say "that more than one variable will affect the outcome." Also it is pointed out that most decisions are made after information is received from more than one source.

All of the before-mentioned factors about diffusion of technology seem to be likely to suggest a pattern of adoption of technology and management practices from the Rapid Adjustment Farm to other farms in the community.

Summary

By putting together those studies which have previously been done on diffusion of innovation from demonstrational farms and the

characteristics of the diffusion process that seem applicable to this study of the Rapid Adjustment Farms, we can determine from this review of literature the following variables which we need to study:

1. Observability of practices.
2. Opinion leadership of Rapid Adjustment Farmers.
3. Age of Farmer.
4. Size of Farm.
5. Adoption Categories.
6. Group Participation.

These six variables along with the others mentioned in the review of literature are many times dependent upon each other and cannot always be considered individually.

CHAPTER III

METHODOLOGY

The design, the population surveyed, the development of the instrument used in the study, and the methods of collecting and analyzing the data are presented in this chapter.

Design

Since there were no data collected prior to the initiation of the Rapid Adjustment Farm Program concerning the percent of adoption of practices, it was decided that the basic design of the research should be descriptive survey.[1] As in most descriptive survey research, the information or variables must come from a variety of sources. The independent variables for this study were secured from the Rapid Adjustment Farmers, County Extension Agents and the Respondent Farmers.

1. Independent variables secured from the Rapid Adjustment Farmer:
   a. Observability of farm from community-traveled highway.
   b. Community groups of Rapid Adjustment Farmer.
   c. Size and scope of Rapid Adjustment Farm.
2. Independent variables secured from County Agents:
   a. Amount of mass media coverage of Rapid Adjustment Farm.

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[1]Fred N. Kerlinger, Foundation of Behavioral Research, (New York, Holt, Rinehart and Winston, Inc., 1964), pp. 293-408.

b. Number of tours and educational events held on the Rapid Adjustment Farm.

3. Independent variables secured from respondent farmer:

a. Respondent's awareness and knowledge of Rapid Adjustment Farm.

b. Opinion leadership of Rapid Adjustment Farmer.

c. Whether respondent had been on Rapid Adjustment Farm.

d. Whether respondent was a personal friend of Rapid Adjustment Farmer.

e. Proximity of respondent to Rapid Adjustment Farm.

f. Size and scope of respondent's farm.

The dependent variables were secured from the respondent farmers.

a. Respondent's awareness and knowledge of Rapid Adjustment Farm.

b. The adoption by respondent of practices applied on the Rapid Adjustment Farm.

c. Respondent's thinking about whether the Rapid Adjustment Farm practices were practical on his farm.

d. Respondent having gotten ideas from the Rapid Adjustment Farm Program.

Population and Sample

As indicated in the objectives for the research, the primary group of people who were to be studied were farmers living in the same community with Rapid Adjustment Farm cooperators. At the time the study was initiated (September, 1973), there were over twenty Rapid

Adjustment Farms in Ohio; therefore, it was decided that because of lack of resources, it was necessary to select three Rapid Adjustment Farms with similar enterprises and tenure on the program, that were located fairly close to the researcher. Another limiting factor was that the Rapid Adjustment Farm had to have been on the program sufficient time so that the results of the program could be measured and diffusion have had time to occur.

Three dairy Rapid Adjustment Farms were selected in the Belle Valley Extension area for the above-mentioned reasons, one in each of three counties.

The population was all of the dairy farmers in these three counties. A complete listing of dairy farms was prepared from the Brucellosis Ring Test report. The population was found to consist of 55 dairy farms in County C, 150 dairy farms in County B, and 158 dairy farms in County A. A stratified random sample of thirty (30) was drawn from each county list by the method of random numbers. Extra farms were also selected by the method of random numbers to be used in case an interview with the original thirty was not possible or if the dairymen had since quit dairy farming.

Instrumentation

An interview schedule was developed to obtain the necessary independent and dependent variables from the respondent farmers. A copy of the interview schedule is in Appendix B. The interview

schedule consisted of four sections. Section I was designed to determine whether the respondent farmer viewed the Rapid Adjustment Farmer as an opinion leader. Section II was used to obtain the dependent variable of practices adopted and year of adoption. In Section III questions were concerned with the respondent's knowledge and relationship with the Rapid Adjustment Farmer. In Section IV the independent variables about the respondent and his farming operation were obtained.

Of the three main methods of determining opinion leadership (a. sociometric techniques, b. informants, and c. self-designating techniques), all are of about equal validity.[2] It was decided for the study to use the sociometric technique (this is asking the respondent to whom he would go to seek information).

In Section I of the interview schedule, the questions asked the respondents to whom they would go to seek advice on various agricultural topics. Two of the questions were broad in nature and let the respondent answer with any person in any occupation. The rest of the questions constrained the answers to farmers. One question dealt with the innovativeness of farmers and let the respondent answer with the farmer they saw as first trying new ideas.

Section II was designed to get at the adoption of practices. The specific practices used in this study were selected from all of the practices and recommendations put into effect on the Rapid Adjustment Farm. These practices were secured from County Agents, Area Agents,

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[2]Rogers, op. cit., p. 215.

and State Specialists. Seventeen separate practices were listed and respondents were asked to respond to whether they (1) Haven't heard of the practice (not aware), (2) Have heard of the practice, but haven't tried it (aware), (3) Think it might be a good idea, but haven't tried it (evaluation), (4) Have tried it one or two times (trial), (5) Use the practice all or most of the time (adoption), or (6) Did use the practice, but don't now (rejection).

In Section II, if any of the practices were answered as tried or used, the respondent was asked which year he first tried or used it. This was so that it could be determined if the Rapid Adjustment Farm program might have helped influence the trial or adoption of the practice.

In Section III the questions dealt specifically with the respondent's knowledge of the Rapid Adjustment Farm and his relationship with the Rapid Adjustment Farmer. Also in Section III the question of whether the practices were viewed as practical or whether the respondent had gotten ideas from the Rapid Adjustment Farm were asked to obtain these two dependent variables.

In Section IV the questions were designed to obtain the independent variables concerning the respondent such as age and size of his farm operation.

The interview method was felt to be superior to the mailed questionnaire for the following reasons:

1. The first section on opinion leadership could be compiled before the Rapid Adjustment Farm name was mentioned and the opinion

leadership could be identified with one set of interviews.

2. Interviewers can get more accurate data, because the last part of the schedule may influence the first part of the schedule.

3. A more accurate account of size of operation and practices used can be secured by a combination of observation and questions.

It was realized that the interview method has the disadvantage of the respondent being sometimes vague, evasive, and often embarrassed, since rural people seem to many times view direct questions as a violation of socially-accepted limits.[3] However, it was determined by the researcher that the advantages outweighed the disadvantages for this study.

A questionnaire was developed to obtain the independent variable of the amount of mass media coverage of the Rapid Adjustment Farm in each county (Appendix B). This questionnaire was sent to each County Agent in June of 1974.

Pretesting the Interview Schedule

The interview schedule was pretested in June of 1974 by the researcher with two dairy farms in each of the three counties. After studying the responses several changes were made that clarified some of the questions. A few of the opinion leadership questions were dropped because of redundancy.

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[3]Everett M. Rogers and George M. Beal; Proceptive Technique in Interviewing Farmers, The Journal of Marketing, Vol. 23, No. 2, October, 1958, pp. 177-179.

Collection of Data

The data for the study were collected in August of 1974. An interviewer was hired in each of the three counties. The County Agent in each county helped find a person who would be willing to do the interviewing. During the last of July a training session was held with the interviewers. The researcher did the training of the interviewer, which consisted of familiarizing them with the study, the interview schedule and proper methods of interviewing; after the training session, each interviewer practiced interviewing each other so that questions might have a chance to surface. Each interviewer then conducted a test interview with a farmer selected at random from the alternate list before he started the official interview. Also included with each interview schedule was a card for each respondent with the possible answers for questions in Section Two. The card is included in the Appendix B.

The interviewers were instructed that if unable to obtain an interview with a farmer to go to the alternate list and take them in order as they were selected by random number. In County A, 14 alternates were used; one respondent refused to be interviewed while 13 were no longer dairy farming. In County B, 17 alternates were used; one refused to be interviewed while 16 had since quit dairy farming. In County C, only six alternates were used, all because of quitting the dairy business.

The interviewers were provided with previously-addressed letters to the respondent stating the purpose of the study and that an interviewer

would be calling upon them (Appendix B). This letter was signed by the researcher and the County Agent of each county with the exception of Jefferson County where the researcher had previously served on the extension staff and was well known by the farmers of the county. These letters were mailed by the interviewer a few days prior to the interviews. The interviewer then called and set up an appointment for the interview.

The interviewers were also provided with an identification letter written and signed by the researcher (Appendix B). This letter introduced the interviewer and thanked the respondent for his cooperation.

Analysis of Data

After all interview schedules had been completed, the data were transfered to code sheets and then punched on data processing cards for analysis. The Statistical Package for the Social Science (SPSS) was the computer program used.

Following an inspection of the print-out sheets on the original data, some of the data were collapsed, by recoding, into more meaningful and manageable units for analysis. Those variables that were collapsed were age, size of farm, and number of livestock.

For statistical analysis reasons and since very few farmers had rejected any of the practices, the practices that had been rejected were recoded as missing data and not taken into account.

Those farmers that did not know the Rapid Adjustment Farmer could not be asked the questions concerning their thoughts of and relationship with the Rapid Adjustment Farm. For this reason, there were only

51 responses of the 90 in the sample that answered questions concerning (a) having been on Rapid Adjustment Farm, (b) being a friend of Rapid Adjustment Farmer, (c) being in similar community groups with the Rapid Adjustment Farmer, (d) thinking that the practices there were practical, (e) having gotten ideas from the Rapid Adjustment Farm. The analysis and statistics that deal with these variables, therefore, have only 51 in the sample compared to the 90 of the entire sample.

Percentage distribution and mean weighted scores were the major techniques used in analysis of the data. Cramer's V was the statistical method used to show the degree of relationship or correlation between variables.[4] The chi-square test was chosen as the statistical tool for examining the significance of relationships between variables. The probability level of .05 was used to determine if variables were significant.

When presenting information about the adoption of specific practices, a "Mean Adopted Score" was used to decide where the farmers were on the adoption process with (1) not aware, (2) aware, (3) evaluation, (4) trial, and (5) adopted.

To evaluate the relationship of the adoption of practices to various variables, it was necessary to develop an "Adoption Score" for the farmer in the sample. This was done by determining how many practices each farmer had adopted of the 17 practices. These scores

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[4]William L. Hays, Statistics for Psychologists, Holt, Rinehart and Winston, Chicago, Illinois. 1965. pp. 604-606.

ranged from 0 to 14. So that these scores could better be evaluated in relationship with different independent variables, the scores were grouped as closely as possible to the lower 25 percent (low quarter), middle 50 percent (middle half); or high 25 percent (high quarter).

When comparing variables that could be obtained from the respondent only if he knew the Rapid Adjustment Farmer, the number in the total sample was 51 instead of 90. The variables included the following: (1) Frequency of respondent driving by the Rapid Adjustment Farm, (2) Respondent being a personal friend of Rapid Adjustment Farmer, (3) Respondent having been on the Rapid Adjustment Farm, (4) Respondent having received ideas from the Rapid Adjustment Farm, (5) Respondent thinking the Rapid Adjustment Farm practices were practical, and (6) Respondent being in similar groups with the Rapid Adjustment Farmer.

CHAPTER IV

FINDINGS OF RESEARCH

Characteristics of the Rapid Adjustment Farmer

The Rapid Adjustment Farms being studied are referred to in this chapter by letter A, B, and C. Table 1 shows the characteristics of these farms in 1969, the first year of the program, and in 1974 after the completion of the five-year program.

We can see from Table 1 that at the time the Rapid Adjustment Farm Program started, the farms were similar in number of dairy cows with an average of 31 cows. By 1974 the average number of cows was 51 with County C having the fewest at 47 and County B, the most with 58. County B now has the largest farm in number of acres operated at 716 and County A is the smallest farm with only 195 acres. County C has 45 replacement heifers (almost as many as cows) and thus indicates further intentions to expand. The Rapid Adjustment Farmer in County C is the oldest at 47 and the farmer in County A, the youngest at 35.

In County C the Rapid Adjustment Farmer is in five county-wide farm committees or groups and has served or is serving as chairman of these committees. He is also in two community farm groups. The Rapid Adjustment Farmer in County B has served on one county-wide farm committee and belongs to three community farm groups. In County A, the Rapid Adjustment Farmer is a member of one county organization and is not associated with other farm groups, committees or organizations.

TABLE 1

CHARACTERISTICS OF THE RAPID ADJUSTMENT FARM

Characteristics	Combined Farms-1974 Mean (N=3)	County A 1969	County A 1974	County B 1969	County B 1974	County C 1969	County C 1974
Age of Farmer	41		35		41		47
Acres Operated	410	195	195	275	716	320	320
No. of Dairy Cows	51	30	49	32	58	32	47
No. of Dairy Replacement Heifers	34	15	20	28	37	20	45
No. of Beef Breeding Cows	0	0	0	0	0	0	0
No. of Beef Feeders	0	0	0	0	10	0	0
No. of Poultry	8	0	12	0	12	0	0
No. of Sheep	7	0	20	0	0	0	0
No. of Swine	0	0	0	0	0	0	0

County and Community Groups that Rapid Adjustment Farmer participated in:

Farm Bureau Member

ASCS Community Committeeman
Dairy Board
Young Farmers
Farm Bureau Council

ASCS County Committee Chairman
SCS Board of Directors
Dairy Board
Landmark Board of Directors
Farm Bureau Council
Extension Advisory Committee
Grange

Characteristics of the Respondent Farmer

There were 30 farmers interviewed in each of these three counties. Table 2 shows some of the characteristics of these 90 dairy farmers as to age, and size of their farming operation for all of the counties combined and by individual county.

TABLE 2

CHARACTERISTICS OF RESPONDENT FARM

	All Farms Mean (N=90)	County A Mean (n=30)	County B Mean (n=30)	County C Mean (n=30)
Age of Farmer	49	51	49	47
Acres Operated	262	212	263	310
No. of Dairy Cows	29	22	26	37
No. of Dairy Heifers	18	11	17	24
No. of Beef Breeding Cows	7	7	7	6
No. of Beef Feeders	5	3	7	4
No. of Poultry	67	18	12	172
No. of Sheep	1	.5	1.6	.9
No. of Swine	.4	.6	.3	.3

Table 2 indicates that the average age of the respondent farmer is 49. The range of ages was from 17 to 76 with 47 percent of those being below the average of 49. County C tends to have the younger farmers, but there is only four years difference in the average age of County C at 47 and County A at 51.

The number of acres operated ranges from 16 acres to 850 acres for an average of 262 acres with County A having the smaller farms and County C having the largest. There is almost 100 acres difference in size of farm between County A and County C.

Number of dairy cows range from 1 to 76 with an average number of 29. As would be expected from the size of farm, County A has less than the average with 22 and County C has more than the average with 37. The same ratio holds true for the number of dairy heifers. As for the rest of the livestock species, there is not enough to be of influence except in County C where two fairly large poultry flocks raise the number of poultry kept per farm considerably.

TABLE 3

ADOPTION BY OTHER FARMERS OF SELECTED RAPID ADJUSTMENT FARM PRACTICES IN THE THREE COUNTIES

Practice	% Adopting[b] n = 90	Mean of Adoption Process[a]
Planting alfalfa for hay or pasture	82.2	4.8
Keeping a complete farm account book	77.8	4.6
Use of artificial insemination	71.1	4.6
Feeding cows according to production	70.0	4.4
Soil test crop fields	68.9	4.6
Soil test pasture fields	52.2	4.3
Fertilize hay and legumes each year	48.9	4.1
High silage ration feeding program	47.8	3.9
Soil test crop fields every 3 years	46.7	4.0
Soil test pasture fields every 3 years	26.7	3.6
Sowing alfalfa without companion crop	26.7	3.5
Keeping DHIA or other production records	16.7	3.2
Band seeding with press wheels of grass and legumes	14.4	3.2
No-till corn	14.3	3.2
Use of forage testing or feed analysis	10.0	3.1
Sowing alfalfa without grass	10.0	3.1
Urea in corn silage	5.6	2.5

[a]Adoption Process Scale: 1 = not aware; 2 = aware; 3 = evaluation; 4 = tried; 5 = adopted

[b]Those who checked 5 on adoption process scale.

Adoption of Practices

Since this is a descriptive survey study, the only way that we can determine if diffusion is occurring is by measuring the number of practices that have been adopted on the respondent farm.

Adoption of Rapid Adjustment Farm Practices by Other Farmers

The percent of adoption of each practices along with the mean of the adoption process is presented in Table 3. The mean of the adoption score is the mean of the adoption process where (1) not aware, (2) aware, (3) evaluation, (4) trial, and (5) adopted were the criteria used.

Table 3 shows that the adoption by other farmers of the selected Rapid Adjustment Farm practices in the three combined counties ranged from 82 percent adopted for planting alfalfa to six percent for use of urea in corn silage. Only two practices, that of planting alfalfa for hay or pasture and keeping a complete farm account book have been adopted by more than 75 percent of the respondent dairy farmers. Only seven practices have been adopted by more than 50 percent of the respondent farmers. All of these practices that have been adopted by more than 50 percent of the farmers are older, well-established practices. Six practices fall below the twenty-five percent adoption level and two of these - keeping DHIA or other production records and band seeding with press wheels - are among those practices being recommended several years.

The means of the adoption process (with 1 = not aware; 2 = aware, 3 = evaluation; 4 = tried; and 5 = adopted) range from 4.8 for planting

alfalfa to 2.5 for use of urea in corn silage. With the exception of soil testing of crop field and high silage feeding program, these means are very consistent with the percent adoption of the practices.

Over fifty percent of the means of the adoption process are below the trial level while only four practices are closer to adoption level than the trial.

We look at these same data by individual county in Table 4. As can be seen by Table 4, there is considerable difference between counties. County C has a range from 100 percent adoption of planting alfalfa to 10 percent adoption for sowing alfalfa without grasses while County A has a range of 67 percent for keeping a complete farm account book to 0 percent for no-till corn and urea in corn silage. County B's scores fall between County A and County C scores.

The mean of the adoption process, however, does not vary to the extremes that the percent of adoption does between the counties. The mean adoption scores range from 5.0 for planting alfalfa to 2.6 for sowing alfalfa without grass in County C. In County B it ranges from 5.0 for planting alfalfa to 2.1 for using urea. In County A the highest mean adoption score is 4.6 for farm account book and artificial insemination and the lowest was 3.0 for use of urea in silage. While for the more highly adopted practices, County C has a higher mean adoption score than County A or B; on the lesser adopted practices, there is little difference or in some instances, County A rates higher on the adoption process than County C even though it has far less

TABLE 4

ADOPTION BY OTHER FARMERS OF SELECTED RAPID ADJUSTMENT FARM PRACTICES BY INDIVIDUAL COUNTIES

Practice	Percentage Adopting			Means of Adoption Process[a]		
	County A n = 30	County B n = 30	County C n = 30	County A	County B	County C
Planting alfalfa for hay or pasture	50.0	96.7	100.0	4.4	5.0[b]	5.0
Keeping a complete farm account book	66.7	80.0	86.7	4.6	4.6	4.6
Use of artificial insemination	63.3	83.7	86.7	4.6	4.3	5.0
Feeding cows according to production	60.0	70.0	80.0	4.3	4.3	4.5
Soil test crop fields	46.7	76.7	83.3	4.3	4.7	4.8
Soil test pasture fields	33.3	53.3	70.0	4.2	4.2	4.7
Fertilize hay and legumes each year	36.7	43.3	66.7	3.9	3.9	4.4
High silage ration feeding program	20.0	50.0	73.3	3.4	3.8	4.4
Soil test crop field every 3 years	33.3	46.7	60.0	3.9	3.9	4.2
Soil test pasture every 3 years	13.3	23.3	43.3	3.4	3.5	3.9
Sowing alfalfa without companion crop	20.0	30.0	30.0	3.6	3.5	3.3
Keeping DHIA or other production records	16.7	13.3	20.0	3.4	3.1	3.1
Band seeding with press wheels of grass and legumes	13.3	6.7	23.3	3.4	3.1	3.1
No-till corn	0.0	16.7	26.7	3.1	3.2	3.2
Use of forage testing or feed analysis	10.0	6.7	13.3	3.2	3.3	2.9
Sowing alfalfa without grasses	3.3	16.7	10.0	3.0	3.1	2.6
Urea in corn silage	0.0	10.0	16.7	3.0	2.1	2.7

[a]Adoption Process Scale: 1 = not aware; 2 = aware; 3 = evaluation; 4 = tried; 5 = adoption

[b]The adoption process mean for County B for planting alfalfa for hay or pasture is 5, even though there is only a 96.7% adoption rate. This is because one respondent had rejected the practice and the rejections were not calculated in the adoption process score.

adoption of the practice. This seems to indicate that for the older and longer-recommended practices, the amount of adoption as well as the stage in the adoption process varies considerably between the counties. While for the newer or less highly adopted practices, the percent for adoption varies among counties, but the stage in the adoption process is very similar. It can be concluded from this that the farmers in County C seem to move from the evaluation stage into the trial and adoption stages much more quickly after the introduction of new practices or technology than County B or County A, with County A being the slowest to take this step. Several factors could be important in explaining this relationship such as grade of milk produced, size of farm or age of farmer. These will be looked at later in this study. Table 4 seems to indicate that County C farmers tend to be more innovative than the farmers in County A or County B.

Adoption of Rapid Adjustment Farm Practices by Other Farmers Since 1970

Since the Rapid Adjustment Farm Program began in late 1968 and 1969, we would not expect the program to have influence on farmers until at least 1970. For this reason Table 5 shows the number trying or adopting practices since 1970.

We can see from Table 5 that the range in number of farmers adopting practices since 1970 is from 23 for no-till corn to 3 for soil testing of crop and pasture fields every three years. The percent of those adopting since 1970 of all who adopted the practices range from 96 percent for no-till corn to five percent for soil testing of crop

TABLE 5

TRIAL OR ADOPTION OF PRACTICE SINCE 1970

Practice	Total N Trying or Adopting	Number Since 1970	Percent of All Who Tried or Adopted
No-till corn	24	23	95.8
Sowing alfalfa without companion crop	37	11	29.7
High silage ration feeding program	48	9	18.8
Fertilize hay and legumes each year	52	9	16.1
Band seeding with press wheels of grass and legumes	20	7	35.0
Use of forage testing or feed analysis	17	7	41.2
Keeping a complete farm account book	77	6	7.8
Keeping DHIA or other production record	32	6	19.7
Urea in corn silage	7	6	85.7
Planting alfalfa for hay or pasture	85	5	5.9
Use of artificial insemination	80	5	6.3
Soil test pasture fields	73	5	6.8
Sowing alfalfa without grasses	19	5	26.3
Feeding cows according to production	66	4	6.3
Soil test crop fields	77	4	5.2
Soil test crop fields every three years	49	3	6.1
Soil test pasture fields every three years	31	3	9.7
Total		118	

fields. The other practices with a relatively high adoption percentage since 1970 are use of urea on corn silage, 86 percent; forage resting and feed analysis, 41 percent; and band seeding with press wheel of grasses and legumes, 35 percent. In general, those practices which are the more recent are the practices that have the highest percentage adopting since 1970.

Number of Practices Adopted

In order to obtain information as to the degree of adoption of respondents, it was determined to group respondents by the number of the seventeen different practices that he had adopted. Table 6 indicates these degrees of adoption.

The range of the adoption of practices was from 0 practices to 14 practices. Six respondents had not adopted any of the 17 selected practices while three had adopted 14 practices. The mean or average number of practices adopted was 6.9; 65.6 percent of the farmers had adopted 50 percent or less of the 17 selected practices while only 5 percent had adopted more than 75 percent of the practices.

So that these adopted values can better be evaluated in comparison with different independent variables, they were grouped as closely as possible to the lower 25 percent (lower quarter), the middle 50 percent (middle half), and the upper 25 percent (upper quarter).

TABLE 6

TOTAL NUMBER OF PRACTICES ADOPTED BY RESPONDENTS

Number of Practices Adopted	n	Relative Frequency Percentage	Cumulative N	Cumulative Adjusted Frequency Percentage
0	6	6.7	6	6.7
1	1	1.1	7	7.8
2	5	5.6	12	13.3
3	6	6.7	18	20.0
4	6	6.7	24	26.7
5	5	5.6	29	32.2
6	9	10.0	38	42.2
7	9	10.0	49	52.2
8	12	13.3	59	65.6
9	9	10.0	68	75.6
10	7	7.8	75	83.3
11	8	8.9	83	92.2
12	3	3.3	86	95.6
13	1	1.1	87	96.7
14	3	3.3	90	100.0
Total		100.0	90	100.0

Mean = 6.90 Mode = 8.00 Median = 7.28

When we take a look at these adoption level categories compared by county, we find that there are differences among the counties. Table 7 shows these results

In County A we notice that only one farmer or 4.5 percent was in the high adoption level category compared to 15 farmers or 64 percent of the farmers in County C. In County C only two farmers of the low adoption level category were in County C and 15 were in County A. About 30 percent of each level were in County B.

TABLE 7

ADOPTION OF PRACTICES BY COUNTY

Adoption Level Category For all Counties	Total N	County A %	County B %	County C %
Low Quarter	24	62.5	29.2	8.3
Middle Half	44	31.8	36.4	31.8
High Quarter	22	4.5	31.8	63.6

Relationship Between Adoption and Knowledge of Rapid Adjustment Farm

One of the objectives was to determine if there was a relationship between adoption of practices and knowledge of the Rapid Adjustment Farm. Table 8 indicates the adoption of practices in relation to the respondent knowing about the Rapid Adjustment Farm program.

TABLE 8

ADOPTION OF PRACTICES IN RELATIONSHIP TO KNOWLEDGE OF RAPID ADJUSTMENT FARM

Adoption Level Category	Total N	n	% Knowing R A Farm
Low Quarter	24	7	29.2
Middle Half	44	27	61.4
High Quarter	22	17	77.3

$\chi^2 = 11.6$ d.f. = 2 $p < .003$
Cramer's V = 0.359

Table 8 shows that of those respondents in the upper quarter of the adoption series, over three-quarters knew of the Rapid Adjustment Farm while of those in the lower quarter of the adoption series, only 29 percent knew of the Rapid Adjustment Farm. From these data it appears that those who are adopting more practices are more knowledgeable about the Rapid Adjustment Farm Program. In Table 9 we look at this same relationship by county.

TABLE 9

ADOPTION OF PRACTICES IN RELATION TO KNOWLEDGE OF RAPID ADJUSTMENT FARM BY COUNTY

Adoption Level Category	County A Total N	County A No. Who Knew	County B Total N	County B No. Who Knew	County C Total N	County C No. Who Knew
Low Quarter	15	6	7	1	2	0
Middle Half	14	8	16	11	14	8
High Quarter	1	1	7	6	14	10

Table 9 shows that the same relation between adoption score and knowledge of the Rapid Adjustment Farm holds true when this relationship is compared by county.

Opportunities for Awareness of Rapid Adjustment Farm Program

To determine if the amount of mass media coverage or the observability of the Rapid Adjustment Farm had an effect on the awareness of the respondents of the program, these variables were compared.

Relationship of Mass Media Coverage to Awareness of Rapid Adjustment Farm

The amount of mass media coverage varied by county (see Table 48 in Appendix A) and it was hypothesized that this would have an effect on the number of other farmers knowing about the Rapid Adjustment Farm. Table 10 describes the results of the comparison.

TABLE 10

RELATIONSHIP OF MASS MEDIA COVERAGE OF RAPID ADJUSTMENT FARM PROGRAM WITH AWARENESS OF THE RAPID ADJUSTMENT FARM

County	Times of Mass Media Coverage	Total N	Number Aware of R. A. Farm
A	14	30	15
B	135	30	13
C	69	30	15

χ^2 = 0.356 d.f. = 2 n.s.
Cramer's V = .095

Table 10 seems to indicate that although the amount of mass media coverage varies, there is no significant difference between counties with the number of dairy farmers being aware of the Rapid Adjustment Farm Program.

County B reports the most tours and educational events that other dairy farmers might have attended, but County A reports the same attendance at fewer events, and County C had both fewer events and fewer in attendance (see Table 49 in Appendix A).

Relationship of Adoption to Observability from Highway

As mentioned in the methodology section, in all tables that deal with the variables that could be obtained from the respondent only if he knew the Rapid Adjustment Farmer, the number in the total sample is 51 instead of 90.

Comparison of the adoption score to the frequency of the respondent driving by the Rapid Adjustment Farm is shown in Table 11. This is an attempt to measure observability.

As can be seen by Table 11, there is a very small relationship between the adoption score of the respondent farmer and the frequency of times that he drives by the Rapid Adjustment Farm; the relationship was not significant. The frequency of driving by the farm is an attempt to measure the Rapid Adjustment Farm's observability. Adoption level category is not related to frequency of driving by the Rapid Adjustment Farm.

TABLE 11

RELATIONSHIP OF ADOPTION OF PRACTICES TO OBSERVABILITY FROM COMMUNITY TRAVELED HIGHWAYS

Adoption Level Category	Total N	Combined Counties - Frequency of Driving By			
		% Weekly	% Monthly	% Less Often	Total %
Lower quarter	7	14.3	14.3	71.4	100.0
Middle half	28	10.7	25.0	64.3	100.0
Higher quarter	16	12.5	25.0	62.5	100.0

χ^2 = .428 d.f. = 4 n.s.
Cramer's V = .06

There is a significant relationship between counties and the number of times that other farmers drive by the Rapid Adjustment Farm. Table 12 shows this relationship to be a modest level as indicated by the .36 Cramer's V.

If assuming that the frequency of driving by the Rapid Adjustment Farm measures of the farm's observability, then Table 12 indicates that County A and County C tend to be the most observable. This would stand to reason by the fact that both of these farms are located just off State highways while in County B, the Rapid Adjustment Farm is located on a township road. This tends to take on additional meaning when combined with the fact that County B had much more mass media coverage than the other two counties. This wirter feels that these two facts together might explain why the awareness of the Rapid Adjustment Farm Program is similar in all counties.

TABLE 12

RELATIONSHIP OF FREQUENCY OF DRIVING BY THE RAPID ADJUSTMENT FARM WITH THE COUNTY

	County A n = 15 %	County B n = 18 %	County C n = 18 %
Weekly	20.0	5.6	11.1
Monthly	13.3	5.6	50.0
Less Often Than Monthly	66.7	88.9	38.9
Total	100.0	100.0	100.0

$\chi^2 = 13.44$ d.f. = 4 $p < .01$
Cramer's V = .36

Opinion Leadership and its Relationship to Adoption

Table 13 indicates the perception of the respondent farmer of the Rapid Adjustment Farmer as an opinion leader.

As can be seen in Table 13, 20 percent of the respondent farmers perceived the Rapid Adjustment Farmer as an opinion leader with nine percent mentioning his name more than once. One respondent in County C mentioned his name as many as four times.

This perception of the Rapid Adjustment Farmer as an opinion leader does vary, however, considerably between counties. In County A the name of the Rapid Adjustment Farmer is mentioned only twice or seven percent of the time while in County B and County C, it is mentioned 13 percent and 40 percent respectively. This seems to

TABLE 13

OPINION LEADERSHIP OF RAPID ADJUSTMENT FARMER AS PERCEIVED BY RESPONDENT FARMERS

	Combined Counties		Individual Counties		
	Number	% of Sample n = 90	County A n = 30 %	County B n = 30 %	County C n = 30 %
Mentioned R. A. Farmer as Innovator[a]	13	14.4	3.3	10.0	30.0
Thought of R.A. Farmer As Opinion Leader[b]	18	20.0	6.7	13.3	40.0
Mentioned R. A. Farmer Name More than Once as Opinion Leader	8	8.8	.0	3.3	23.0

[a]The respondent is considered viewing the Rapid Adjustment Farmer as an innovator if he mentioned his name in response to question #5.

[b]The respondent is considered seeing the Rapid Adjustment Farmer as an opinion leader if he mentioned the Rapid Adjustment Farmer once or more in answering the first five questions of the interview schedule.

indicate that there is a difference among counties of the opinion leadership of the Rapid Adjustment Farmer. Opinion leadership is a combination of many factors and should be kept in mind when considering other variables such as similar groups, friends, and observability.

Relationship of Adoption to Opinion Leadership

In attempting to understand the type of person that is viewing the Rapid Adjustment Farmer as an opinion leader, the relation of

adoption scores is compared to the percentage seeing the Rapid Adjustment Farmer as an opinion leader. See Table 14.

TABLE 14

RELATIONSHIP OF ADOPTION OF PRACTICES TO OPINION LEADERSHIP OF RAPID ADJUSTMENT FARMER

Adoption Level Category	Those Thinking Rapid Adjustment Farmer is Opinion Leader								
	Combined Counties Total			County A Total		County B Total		County C Total	
	N	n	%	N	n	N	n	N	n
Low Quarter	24	1	4.2	15	1	7	0	2	0
Middle Half	44	8	18.2	14	0	16	3	14	5
High Quarter	22	9	41.9	1	1	7	1	14	7

It is readily seen in Table 14 that over 40 percent of the farmers in the high quarter on the adoption score think of the Rapid Adjustment Farmer as an opinion leader. Those with the lower adoption score do not tend to view the Rapid Adjustment Farmer as an opinion leader. As seen previously in Table 8, this same relationship holds true of awareness of the Rapid Adjustment Farm to adoption score, and this would be expected since one would not perceive the Rapid Adjustment Farmer as an opinion leader unless he knew the Rapid Adjustment Farmer. When viewed by counties, we notice the same relationship as with the combined counties holds true.

Relationship Between Percentage of Adoption of Practices and Variables Among Respondent Farmers

In an attempt to determine which variables among the respondent farmers might be related to adoption, this section will compare these variables to adoption score.

Relationship of Adoption of Practice to Distance of Respondent From Rapid Adjustment Farm

Previous literature indicates that the further a farmer is from the demonstration, the less likely he will have adopted the practice. This does not seem to be the case in Table 15.

TABLE 15

RELATIONSHIP OF ADOPTION OF PRACTICE TO MILES RESPONDENT'S FARM IS FROM RAPID ADJUSTMENT FARM

Adoption Level Category	Distance From Rapid Adjustment Farm - Miles Total N	0-5 %	6-10 %	11-20 %	21-35 %	Total %
Lower Quarter	24	20.8	29.2	20.8	29.2	100.0
Middle Half	44	4.4	34.1	38.6	15.9	100.0
High Quarter	22	13.6	22.7	31.8	31.8	99.9

χ^2 = 5.2? d.f. = 6 n.s.
Cramer's V = .17

There is no significant relationship shown by Table 15 between adoption level and distance from the Rapid Adjustment Farm. There is also no significance between this relationship when viewed by individual counties.

Relationship of Adoption of Practice to Respondent Having Been on Rapid Adjustment Farm

It might be thought that there would be a relationship between the respondent having been on the Rapid Adjustment Farm and having adopted practices. Table 16 compares these variables.

TABLE 16

RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT HAVING BEEN ON RAPID ADJUSTMENT FARM

Adoption Level Category	Knowing Rapid Adjustment Farm Total N	On Rapid Adjustment Farm Yes n	Yes %	No n	No %
Lower Quarter	7	3	42.9	4	57.1
Middle Half	29	18	62.1	11	37.9
High Quarter	16	13	81.3	3	18.8
Total	52	34		18	

$\chi^2 = 3.49$ d.f. = 2 n.s.
Cramer's V = .26

As can be seen in Table 16, 81 percent of those in the high adoption category who knew the Rapid Adjustment Farmer had been on the Rapid Adjustment Farm compared to 43 percent in the low adoption category. This relationship is not significant.

In Table 17 we can see that the farmers in the higher and middle adoption categories tended to have been on the Rapid Adjustment Farm more than the lower adoption level farmers had.

TABLE 17

RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT HAVING BEEN ON RAPID ADJUSTMENT FARM (BY COUNTY)

Adoption Level Category	County A Total N	County A No. on Farm	County B Total N	County B No. on Farm	County C Total N	County C No. on Farm
Low Quarter	6	3	1	0	0	0
Middle Half	9	4	11	9	9	5
High Quarter	1	1	6	4	9	8
Total	16	8	18	13	18	13

Relationship of Adoption of Practices to the Respondent and Rapid Adjustment Farmer Being Friends

There is a tendency for a greater percentage of the high adoption level farmers to be a friend of the Rapid Adjustment Farmer, with only 43 percent of those in the low adoption level category being a personal friend of the Rapid Adjustment Farmer while 82 percent of the high adoption level farmers who knew the Rapid Adjustment Farmer were personal friends of him. This relationship as shown by Cramer's V is .28. This is not a significant relationship. This pattern appears the same when viewed by individual counties as shown in Table 19.

TABLE 18

RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT WHO KNEW THE RAPID ADJUSTMENT FARMER, BEING A PERSONAL FRIEND OF THE RAPID ADJUSTMENT FARMER

Adoption Level Category	Total N	Friend of R. A. Farmer Yes n	Yes %	No n	No %
Lower quarter	7	3	42.9	4	57.1
Middle half	29	17	58.6	12	41.4
Higher quarter	17	14	82.4	3	17.6
Total	53	34		19	

$\chi^2 = 4.21$ d.f. = 2 n.s.
Cramer's V = 0.28

TABLE 19

RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT WHO KNEW THE RAPID ADJUSTMENT FARMER, BEING A PERSONAL FRIEND OF THE RAPID ADJUSTMENT FARMER (BY COUNTY)

Adoption Level Category	County A Total N	County A Friend No.	County B Total N	County B Friend No.	County C Total N	County C Friend No.
Lower quarter	6	2	1	1	0	0
Middle half	9	4	11	7	9	5
Higher quarter	1	1	6	4	10	9
Total	16		18		19	

Relationship of Adoption of Practices with Respondent and Rapid Adjustment Farmer in Similar Groups.

It is theorized that the adoption of practices is reinforced by group participation. In Table 20 we see this relationship.

TABLE 20

RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT BEING IN COUNTY OR COMMUNITY GROUPS WITH RAPID ADJUSTMENT FARMER

Adoption Level Category	Total N	Not in Group n	Not in Group %	In 1 Group n	In 1 Group %	In 2 Groups n	In 2 Groups %
Lower quarter	7	6	87.7	1	14.3	0	..0
Middle half	29	19	65.5	6	20.7	4	13.8
Higher quarter	17	6	35.3	2	11.8	9	52.9
Total	53	31		9		13	

$\chi^2 = 11.91$ d.f. = 4 $p<.02$
Cramer's V = 0.34

Table 20 indicates that there is a relationship between adoption level of dairy farmers and the number of similar groups that they are in with the Rapid Adjustment Farmer. Of the farmers in the high adoption level category, 65 percent were in one or more groups with the Rapid Adjustment Farmer while only 14 percent of the farmers in the low adoption level category are in similar groups with the Rapid Adjustment Farmer. The primary conclusion that can be safely drawn from this is that those farmers in the high adoption level category are in more groups than those in the low adoption level category.

As we look at the same relationship of similar groups by county in Table 21, we can see that this varies from county to county.

TABLE 21

RELATIONSHIP OF ADOPTION OF PRACTICES WITH RESPONDENT BEING IN COUNTY OR COMMUNITY GROUPS WITH THE RAPID ADJUSTMENT FARMER (BY COUNTY)

Adoption Level Category	County A Total N	County A No. in Groups	County B Total N	County B No. in Groups	County C Total N	County C No. in Groups
Lower quarter	6	0	1	1	0	0
Middle half	9	0	11	4	9	5
Higher quarter	1	0	6	1	10	9
Total	14	0	18	6	19	14

It is apparent from Table 21 that in County A none of the farmers who knew the Rapid Adjustment Farmer were in any similar groups with him, while in County C a majority or 90 percent of those in high adoption level category were in one or more similar groups with him, compared to none and 33 percent in County A and County B respectively. This might tend to explain partially the reason why the County C Rapid Adjustment Farmer is looked to more as an opinion leader since he is in similar groups with more of the other dairy farmers of the county.

Relationship of Adoption of Practice to Size and Scope of Respondent Farm Operator

When trying to determine what type of farmers are adopting the

recommended practices, we looked at the size of the respondent's farm operation in relation to their adoption level category. Tables 22 through 25 give this relationship.

TABLE 22

RELATIONSHIP OF ADOPTION OF PRACTICES WITH SIZE OF RESPONDENT FARM

Adoption Level Category	Total N	Acres Operated 0-100 n	101-200 n	201-300 n	301-400 n	401-850 n
Lower Quarter	24	7	8	5	3	1
Middle Half	44	4	14	12	8	6
Higher Quarter	22	1	4	5	5	7
Total	90	12	26	22	16	14

$\chi^2 = 14.38$ d.f. = 8 $p < .08$
Cramer's V = .28

TABLE 23

RELATIONSHIP OF ADOPTION OF PRACTICES WITH THE NUMBER OF DAIRY COWS OF THE RESPONDENT

Adoption Level Category	Total N	Number of Dairy Cows 0-10 n	11-20 n	21-35 n	36-50 n	51-99 n
Lower Quarter	24	7	12	4	1	0
Middle Half	44	2	12	17	9	4
Higher Quarter	22	0	4	7	8	3
Total	90	9	28	28	18	7

$\chi^2 = 27.78$ d.f. = 8 p .001
Cramer's V = 0.39

TABLE 24

RELATIONSHIP OF ADOPTION OF PRACTICES WITH THE NUMBER OF REPLACEMENT HEIFERS OF THE RESPONDENT

Adoption Level Category	Total N	Number of Replacement Heifers 0-10 n	11-20 n	21-35 n	36-50 n	51-99 n
Lower Quarter	24	20	3	1	0	0
Middle Half	44	14	17	8	2	3
Higher Quarter	22	3	9	4	4	2
Total	90	37	29	13	6	5

χ^2 = 29.965 d.f. = 8 $p < .001$
Cramer's V = .41

TABLE 25

RELATIONSHIP OF ADOPTION OF PRACTICES WITH GRADE OF MILK THE RESPONDENT PRODUCES

Adoption Level Category	Total N	Grade of Milk Produced Grade A n	Grade A %	Grade B n	Grade B %
Lower Quarter	24	14	58.3	10	41.7
Middle Half	44	41	93.2	3	6.8
Higher Quarter	22	22	100.0	0	0.0
Total	90	77		13	

χ^2 = 20.18 d.f. = 2 $p < .001$
Cramer's V = .47

In looking at Tables 22 to 25, we can see that the higher the respondent is on the adoption score, the more acres and dairy cows and heifers he is likely to have. While the number of acres in relation to adoption scores has the significance level of only .08, it can be seen that of this group of dairy farmers, the ones in the high adoption category had larger farms than the ones in the low adoption level category. It might be pointed out, however, that one of the low adopters and six of the average adopters have large farms of over 600 acres.

There is a .001 significant level relationship and a Cramer's V of .39 between the number of dairy cows owned by the respondent and their adoption scores. Note this in Table 23 where it can be seen that no farmer in the lower quarter adoption level category had more than 50 cows while three farmers in the higher quarter adoption level category had over 50 cows and none of the high adopters had less than 11 cows.

The number of replacement heifers kept by these respondents was also related significantly to the respondent's adoption score. It can be surmised from Table 24 that those in the lower adoption level category are keeping very few replacement heifers. While realizing that you must have cows to keep replacement heifers, this might be conceived to mean that they are not planning to expand their herds. While the farmers that scored higher on the number of practices adopted are keeping many more replacement heifers, thus indicating that they are probably going to continue in the dairy enterprise or perhaps going to expand their herds.

The relationship of adoption level to the grade of milk the farmer p. duces is significant at the .000 level and a Cramer's V of .47. All of those farmers in the higher quarter adoption level category produce grade A milk, while only 58 percent of those in the lower quarter level produce grade A milk. These facts seem to suggest similar conclusions as those that can be drawn from the number of cows and replacement heifers.

Characteristics of Those Respondent Farmers Seeing Rapid Adjustment Farm Practices as Practical on their own Farms

Taking the respondent's view of the practicability of the Rapid Adjustment Farm practices as a dependent variable in this section, we compare it with the independent variables.

Respondent Views of Practicality of Rapid Adjustment Farm Practices

When the respondents were asked about the practicality of the practices being carried out on the Rapid Adjustment Farm for their farms, there was an indication that most of the farmers thought that they were practical. Table 26 shows this comparison.

TABLE 26

RESPONDENTS' VIEWS OF PRACTICALITY OF RAPID ADJUSTMENT FARM PRACTICES ON THEIR OWN FARMS

Respondent View of Practices	All Counties Total N	%	County A n	County B n	County C n
Practices are practical	28	54.9	4	11	13
Practices may be practical	17	33.3	10	5	2
Practices are not practical	6	11.8	1	2	3
Total	51	100.0	15	18	18

$\chi^2 = 11.82$ d.f. = 4 $p < .01$
Cramer's V = .34

In Table 26 we see that there is a significant relationship between those seeing the practices as practical and as maybe practices between counties. While there is not a strong relationship with a Cramer's V = .34, it is significant at the .01 level. For those viewing the practices carried out on the Rapid Adjustment Farm as practical, four were in County A compared to 11 and 13 in County B and County C respectively. Note the difference between those who view the practices as practical and those who thought they might be practical. Ten thought they might be practical in County A and only five for County B and two for County C.

Relationship of Adoption to Respondent Viewing Practices as Practical

To determine the adoption level of those viewing the Rapid Adjustment Farm practices as practical, Table 27 compares these variables.

TABLE 27

RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL ON THEIR FARMS TO ADOPTION SCORE

Adoption Level Category	Total N	Number Viewing Practices As Not Practical	Maybe Practical	Practical
Lower quarter	7	1	3	3
Middle Half	28	5	9	14
High quarter	16	0	5	11
Total	51	6	17	28

$\chi^2 = 3.89$ d.f. = 4 n.s.
Cramer's V = 0.195

There is no significant relationship between adoption level and those seeing the practices carried out on Rapid Adjustment Farms as practical on their own farms. However, it might be pointed out that none of the ones in the high adoption group thought that the practices were not practical while five of the 16 in this higher group thought that they might be practical.

Relationship of Opinion Leadership of Rapid Adjustment Farmer to Those Viewing the Practices as Practical

From the review of literature, it was thought that those viewing the Rapid Adjustment Farmer as an opinion leader would be more likely to see the practices carried out on the Rapid Adjustment Farm as practical on their own farms. Table 28 shows this comparison.

TABLE 28

RELATIONSHIP OF THOSE SEEING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO THOSE WHO VIEWED RAPID ADJUSTMENT FARMER AS AN OPINION LEADER

Opinion Leader View	Total N	Viewing Practices as Not Practical n	Maybe Practical n	Practical n
View R. A. Farmer as Opinion Leader	17	1	4	12
Do not view R. A. Farmer as Opinion Leader	34	5	13	16
Total	51	6	17	28

$\chi^2 = 2.63$ d.f. = 2 n.s.
Cramer's V = 0.227

Table 28 shows that the difference between those seeing the Rapid Adjustment Farmer as an opinion leader and those who do not, compared with the practicality of the practices, there is a low correlation and it is not significant. The same lack of relationship holds true when these two variables are compared by county.

Relationship of Distance of Respondent from Rapid Adjustment Farm To Practicality of Practices

The distance the respondent lives from the Rapid Adjustment Farm might be a variable which would influence his viewing the practices carried out there as being practical on his own farm. Table 29 shows the relationship between these two variables.

As can be seen from Table 29, there is no significant relationship between the distance the respondent is from the Rapid Adjustment Farm and viewing the practices carried out there as being practical on their own farms. This same lack of significant relationship holds true when analyzed by individual counties.

TABLE 29

RELATIONSHIP OF THOSE SEEING RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL BY THE DISTANCE RESPONDENT IS FROM RAPID ADJUSTMENT FARM

Distance From R. A. Farm in Miles	Total N	Number Viewing Practices as Not Practical n	Maybe Practical n	Practical n
0- 5	10	1	4	5
6-10	23	3	8	12
11-20	15	1	5	9
21-35	3	1	0	2

$\chi^2 = 2.94$ d.f. = 6 n.s.
Cramer's V = 0.1699

Relationship of Observability of Rapid Adjustment Farm to Respondent Seeing Practices as Practical

The frequency of the respondent driving by the Rapid Adjustment Farm might have influenced the respondent seeing the practice carried out there as being practical on his own farm. Table 30 shows this comparison.

Table 30 shows us that there is no significant relationship between the frequency of the respondent driving by the Rapid Adjustment Farm and the respondent viewing the practices as practical for his farm. This same lack of significant relationship holds true when analyzed by individual counties.

TABLE 30

RELATIONSHIP OF THOSE SEEING RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO THE FREQUENCY OF RESPONDENT DRIVING BY THE RAPID ADJUSTMENT FARM

Frequency of Driving By Farm	Total N	Viewing Practices as Not Practical n	Maybe Practical n	Practical n
Weekly	6	1	3	2
Monthly	12	2	2	8
Less Often	33	3	12	18
Total	51	6	17	28

$\chi^2 = 2.9707$ d.f. = 4 n.s.
Cramer's V = 0.17

Relationship of Friendship to Respondent Viewing the Practices as Practical

With 55 percent of the respondents viewing the practices on the Rapid Adjustment Farm as practical and 64 percent of the respondents who knew the Rapid Adjustment Farmer being a friend of his, it is important to see if these variables are related. Table 31 shows the relationship.

The variable of friendship and seeing the practices as practical are significantly related with a Cramer's V of .46 and a significance equal to .01. We see in Table 31 that 70 percent of the friends see the practices as practical compared to 28 percent of the non-friends. It is also important to notice that only one of the friends viewed the practices as not practical compared to five of the non-friends. As

TABLE 31

RELATIONSHIP OF FRIENDSHIP TO RESPONDENT VIEWING THE PRACTICES AS PRACTICAL

	Total N	Viewing Practices As Not Practical n	%	Maybe Practical n	%	Practical n	%
Friend of R. A. Farmer	33	1	3.0	9	27.3	23	69.7
Not Friend of R. A. Farmer	18	5	27.8	8	44.4	5	27.8
Total	51	6		17		28	

$\chi^2 = 10.82$ d.f. = 2 $p < .01$
Cramer's V = 0.46

many of the non-friends viewed the practices as not practical as did practical. In Table 32 we look at these same variables by county.

When we look at friendship variable in relation with the respondent viewing the practices as practical by individual county, we find that it holds primarily the same relationship as in the combined counties with the exception of County B which has four of its five non-friends viewing the practices as practical. The highest percentage viewing the practices as practical was in County C which had 13 farmers or 92 percent of the friends and 20 percent of the non-friends viewing the practices as practical.

TABLE 32

RELATIONSHIP OF FRIENDSHIP TO RESPONDENT VIEWING RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL (BY COUNTY)

Relationship	County A				County B				County C			
	Total N	Percentage N.P.[a]	M.P.[b]	P.[c]	Total N	Percentage N.P.	M.P.	P.	Total N	Percentage N.P.	M.P.	P.
Friend of R. A. Farmer	7	0.0	42.9	57.1	13	7.7	38.5	53.8	13	0.0	7.7	92.3
Not Friend of R. A. Farmer	8	12.5	87.5	0.0	5	20.0	0.0	80.0	5	60.0	20.0	20.0
Total	15				18				18			

[a]N.P. is the abbreviation for Not Practical

[b]M.P. is the abbreviation for Maybe Practical

[c]P. is the abbreviation for Practical

Relationship of Having Been on the Farm to Seeing Practices as Practical

Those who have been on the Rapid Adjustment Farm are more inclined to view the practices as practical than those who have not been on the farm (Table 33).

TABLE 33

RELATIONSHIP OF THOSE SEEING RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO THOSE HAVING BEEN ON THE RAPID ADJUSTMENT FARM

	Total	Viewing Practices As					
		Not Practical		Maybe Practical		Practical	
	N	n	%	n	%	n	%
Respondent Having Been on Farm	34	2	5.9	9	26.5	23	67.6
Respondent Not Having Been On Farm	17	4	23.5	8	47.1	5	29.4
Total	51	6		17		28	

$\chi^2 = 7.45$ d.f. = 2 $p < 0.02$
Cramer's V = 0.29

Table 33 indicates that there is a significant relationship between those having been on the farm and their viewing the practices as practical. Of those who had been on the Rapid Adjustment Farm, 68 percent thought that the practices were practical for their farms while only 6 percent thought that they were not practical. This is compared with only 29 percent of those not having been on the farm thinking that the practices were practical. Although this relationship

is significant, it is not large with Cramer's V equal to .28.

When we look at this same relationship by individual county (Table 34), we find a little different relationship than in the combined counties.

Table 34 suggests that in County C there is a greater difference between those having been on the Rapid Adjustment Farm and those not on the farm in their views of the practicality of the practices than in either County A or County B. In County C, 92 percent of those having been on the Rapid Adjustment Farm view the practices as practical compared to 38 percent and 62 percent for County A and County B respectively. It is also interesting to note that 60 percent of those not on the farm in County C viewed the practices as not practical. This is a higher percentage than in either of the other counties.

Relationship of Size and Scope of Respondent's Farm to Respondent Viewing Practices as Practical

The size and scope of the respondent's farm in relation to those respondents viewing the Rapid Adjustment Farm practices as practical is presented in Tables 35 through 38.

TABLE 34

RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO THOSE HAVING BEEN ON RAPID ADJUSTMENT FARM (BY COUNTY)

	County A				County B				County C			
	Total N	% N.P.[a]	% M.P.[b]	% P.[c]	Total N	% N.P.	% M.P.	% P.	Total N	% N.P.	% M.P.	% P.
Respondent Having Been on R.A. Farm	8	0.0	62.5	37.5	13	15.4	23.1	61.5	13	0.0	7.7	92.3
Respondent Not Having Been on R.A. Farm	7	14.3	71.4	14.3	5	0.0	40.0	40.0	5	60.0	20.0	20.0
Total	15				18				18			

[a]N.P. is the abbreviation for Not Practical

[b]M.P. is the abbreviation for Maybe Practical

[c]P. is the abbreviation for Practical

TABLE 35

RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL TO AGE OF RESPONDENT FARMER

Age of Respondent	Total N	Viewing Practices as Not Practical n	%	Maybe Practical n	%	Practical n	%
15-30	5	0	0.0	1	20.0	4	80.0
31-45	20	3	15.0	6	30.0	11	55.0
46-60	21	3	14.3	6	28.6	12	57.1
61-76	5	0	0.0	4	80.0	1	20.0
Total	51						

$\chi^2 = 6.91$ d.f. = 6 n.s.
Cramer's V = 0.341

TABLE 36

RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL BY GRADE OF MILK RESPONDENT PRODUCES

Grade of Milk	Total N	Viewing Practices as Not Practical n	%	Maybe Practical n	%	Practical n	%
Grade A	47	4	8.5	15	31.9	28	59.6
Grade B	4	2	50.0	2	50.0	0	0.0
Total	51	6		17		28	

$\chi^2 = 8.14$ d.f. = 2 $p < .02$
Cramer's V = 0.399

TABLE 37

RELATIONSHIP OF THOSE SEEING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL BY NUMBER OF DAIRY COWS OF RESPONDENT

Number of Cows	Total N	Viewing Practices as Not Practical n	%	Maybe Practical n	%	Practical n	%
1-10	4	1	25.0	3	75.0	0	0.0
11-20	11	2	18.2	2	18.2	7	63.6
21-35	19	2	10.5	8	42.1	9	47.4
36-50	11	1	9.1	2	18.2	8	72.7
51-99	6	0	0.0	2	33.3	4	66.7
Total	51	6		17		28	

$\chi^2 = 9.64$ d.f. = 8 n.s.
Cramer's V = 0.299

TABLE 38

RELATIONSHIP OF THOSE VIEWING THE RAPID ADJUSTMENT FARM PRACTICES AS PRACTICAL BY SIZE OF RESPONDENT FARM

Size of Respondent's Farm in Acres	Total N	Viewing Practices as Not Practical n	%	Maybe Practical n	%	Practical n	%
0-100	7	1	14.3	5	71.4	1	14.3
101-200	10	2	20.0	5	50.0	3	30.0
201-300	14	1	7.1	5	35.7	8	57.1
301-400	11	2	18.2	0	0.0	9	81.8
401-850	9	0	0.0	2	22.2	7	77.8
Total	51	6		17		28	

$\chi^2 = 15.77$ d.f. = 8 $p < .05$
Cramer's V = 0.39

When considering the relationship of the size and scope of the respondent farm to whether or not they viewed the practices carried out on the Rapid Adjustment Farm as practical on their own farms, we find that only the size of farm in number of acres and grade of milk produced (Tables 36 and 38) have a significant relationship to the respondent viewing the practices as practical. The farmer with the larger farm almost always viewed the practices as practical with only three farmers with more than 200 acres viewing the practices as not practical compared to 24 farmers viewing them as practical.

The other variable that was significantly related to respondent's viewing the practices as practical was the grade of milk which they produced. Of the 47 Grade A producers, 91 percent thought that the practices either might be or were practical compared to 50 percent of the Grade B producers.

The other variables as to number of cows and age of respondent farmers were not significantly related to the respondent's view of the practicality of the Rapid Adjustment Farm practices.

Characteristics of the Respondent Farmers that Have Received Ideas From the Rapid Adjustment Farm

Ideas Received From the Rapid Adjustment Farmer

The respondents were asked if they had learned anything or gotten any ideas from the Rapid Adjustment Farm. Table 39 lists the responses that have been combined into groups.

Of the 51 respondents who were aware of the Rapid Adjustment Farm, 25 respondents indicated that they had received ideas from the Rapid Adjustment Farm Program. Table 39 shows that 32 percent of the 25 ideas received dealt with the fertilization program including both the fertilization of crop and pasture fields. Agronomy practices combined accounted for 80 percent of all of the ideas received, while the only practices not agronomic in nature were silo and silage program and the handling of cows and free stalls.

When looking at the ideas received by the respondents, 48 percent were in County C with County A and County B receiving 32 percent and 20 percent respectively. In County C 12 of those farmers knowing the Rapid Adjustment Farmer had received ideas from the Rapid Adjustment Farm Program while in County A and County B, eight and five of the farmers had received ideas from the Rapid Adjustment Farm Program. These differences have to be considered when looking at such variables as opinion leadership and number of educational events held on the farm.

TABLE 39

IDEAS RECEIVED FROM THE RAPID ADJUSTMENT FARM BY FARMER WHO KNEW THE RAPID ADJUSTMENT PROGRAM

Ideas	Received Ideas N	Percent of Total Ideas Received	Receiving Ideas by County County A n	County B n	County C n
Fertilization (including pasture	8	32.0	1	1	6
Forage Seeding	3	12.0	0	1	2
Spray Program for Weeds	3	12.0	0	1	2
Silo and Silage Program	3	12.0	2	0	1
Alfalfa and Hay Production	3	12.0	3	0	0
Handling Cows and Free Stalls	2	8.0	2	0	0
No-till Corn	2	8.0	0	2	0
Soil Conservation	1	4.0	0	0	1
Total	25	100.0	8	5	12

Relationship of Receiving Ideas to Adoption Level

When we compare those who said that they received ideas from the Rapid Adjustment Farm with their adoption level, we find that (as indicated in Table 40) although there seems to be some tendency for a greater percentage of those who are in the upper adoption level category to have gotten ideas that the difference is not significant.

TABLE 40

ADOPTION OF PRACTICES IN RELATION TO RESPONDENT HAVING GOTTEN IDEAS FROM THE RAPID ADJUSTMENT FARM

Adoption Level Category	Total N	Having Received Ideas n	Having Received Ideas %	Not Having Received Ideas n	Not Having Received Ideas %	Total %
Lower quarter	7	2	28.6	5	71.4	100.0
Middle half	29	15	51.7	14	48.3	100.0
Higher quarter	16	10	62.5	6	37.5	100.0
Total	52	27		25		

$\chi^2 = 2.25$ d.f. = 2 n.s.
Cramer's V = 0.207

Relationship of Receiving Ideas to Opinion Leadership of Rapid Adjustment Farmer

With one of the objectives to determine if opinion leadership of the Rapid Adjustment Farmer and other farmers in getting ideas, Table 41 compares these variables.

TABLE 41

RELATIONSHIP OF THOSE LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO RESPONDENT SEEING RAPID ADJUSTMENT FARMER AS AN OPINION LEADER

	Total N	Got Ideas From R. A. Farm Yes		No	
		n	%	n	%
Respondent Views R A Farmer as Opinion Leader	17	13	76.5	4	23.5
Respondent Does Not View R A Farmer as Opinion Leader	35	14	40.0	21	60.0
Total	52	27		25	

$\chi^2 = 4.72$ d.f. = 1 $p < .03$
Cramer's V = 0.227

In Table 41 we can see that there is a definite relationship between those who view the Rapid Adjustment Farmer as an opinion leader and those who said that they received ideas from the Rapid Adjustment Farm. Of those who view the Rapid Adjustment Farmer as an opinion leader, 76 percent got ideas compared to 40 percent for those who do not see him as an opinion leader. This same relationship holds true when analyzed by county.

Relationship of Receiving Ideas to Observability of Rapid Adjustment Farm

In comparing the variable of observability of the Rapid Adjustment Farm and respondent having gotten ideas from it (Table 42), we measure the observability by the frequency of the respondent

TABLE 42

RELATIONSHIP OF THOSE HAVING LEARNED IDEAS FROM THE RAPID ADJUSTMENT FARM TO FREQUENCY OF RESPONDENT DRIVING BY RAPID ADJUSTMENT FARM

Frequency of Driving By Farm	Total N	Got Ideas from R. A. Farmer Yes n	Yes %	No n	No %
Weekly	6	5	83.3	1	16.7
Monthly	12	8	66.7	4	33.3
Less Often	33	14	42.4	19	57.6
Total	51	27		25	

$\chi^2 = 4.59$ d.f. = 2 n.s.
Cramer's V = 0.30

driving by the Rapid Adjustment Farm.

We can see from Table 42 that even though there seems to be some indication that those who drive by more frequently have gotten ideas more than those who drive by less often, it was significant at 0.10 and cannot be counted as significant in this study. This same relationship holds true when analyzed by county.

Relationship of Receiving Ideas and Having Been on Rapid Adjustment Farm

The variables of respondent having received ideas from the Rapid Adjustment Farm and having been on the farm are compared in Table 43.

TABLE 43

RELATIONSHIP OF THOSE HAVING LEARNED IDEAS FROM THE RAPID ADJUSTMENT FARM TO RESPONDENT HAVING BEEN ON THE RAPID ADJUSTMENT FARM

	Total N	Got Ideas From R. A. Farmer Yes n	%	No n	%
On Farm	34	23	67.6	11	32.4
Not on Farm	18	4	22.2	14	77.8
Total	52	27		25	

$\chi^2 = 7.46$ d.f. = 2 p .03
Cramer's V = 0.382

In Table 43 we note that there is a significant relationship between the respondent having been on the Rapid Adjustment Farm and having gotten ideas from it. Of those having been on the farm, 68 percent have gotten ideas from it, compared to four people or 22 percent having received ideas, but not having been on the farm. Apparently, these people received the ideas either by personal contact or by mass media.

Relationship of Receiving Ideas and Respondent Being a Friend of Rapid Adjustment Farmer

In Table 44 we see that there is only a slight correlation of .18 between friendship and having gotten ideas. However, this was not significant. Then in Table 45 we look at the same relationship by county and notice some differences from in the combined counties.

TABLE 44

RELATIONSHIP OF FRIENDSHIP TO RESPONDENT HAVING GOTTEN IDEAS FROM RAPID ADJUSTMENT FARMER

	Total N	Those Getting Ideas n	Those Getting Ideas %	Those Not Getting Ideas n	Those Not Getting Ideas %
Friend of R. A. Farmer	33	20	60.6	13	39.4
Not Friend of R. A. Farmer	19	7	36.8	12	63.2
Total	52	27		25	

$\chi^2 = 1.85$ d.f. = 1 n.s.
Contingency Coefficient = 0.185

TABLE 45

RELATIONSHIP OF FRIENDSHIP TO RESPONDENT HAVING GOTTEN IDEAS FROM THE RAPID ADJUSTMENT FARMER (BY COUNTY)

	County A			County B			County C		
	Total N	Get. Ideas %	Not Get. Ideas %	Total N	Get. Ideas %	Not Get. Ideas %	Total N	Get. Ideas %	Not Get. Ideas %
Friend of R. A. Farmer	7	71.4	28.6	13	30.8	69.2	13	100.0	0.0
Not Friend of R. A. Farmer	9	33.3	66.7	5	60.0	40.0	5	0.0	100.0
Total	16			18			18		

As we look at the relationship of friendship to having gotten ideas from the Rapid Adjustment Farm by county, we find that in general friends have gotten more ideas than non-friends except in County B where only 31 percent of the friends got ideas compared to 60 percent of the non-friends. In County C, all of the friends had gotten ideas while none of the non-friends got ideas.

Relationship of Receiving Ideas to Size and Scope of Respondent Farm

When we compare the size and scope of the respondent's farm with the respondent having received ideas from the Rapid Adjustment Farm, we find that none of the variables of size of farm, number of cows, age, or grade of milk produced are significant when compared to whether or not respondent has gotten ideas from the Rapid Adjustment Farm. These tables are found in Appendix A, Tables 50 through 53. The same lack of significant relationship occurs where the variables are studied by individual county.

Relationship of Respondent Thinking Practices are Practical and Having Gotten Ideas with Respondent Being in Similar Groups With Rapid Adjustment Farmer

Since there were very few in groups with the Rapid Adjustment Farmer in County B and none in similar groups in County A, we cannot look by county at the relationship of farmers being in similar groups with them seeing the practice as practical or having gotten ideas from the Rapid Adjustment Farm. We can, however, make this comparison in County C where 13 farmers were in similar groups with the Rapid Adjustment Farmer. Tables 46 and 47 show these comparisons.

TABLE 46

RELATIONSHIP OF RESPONDENT FARMER HAVING GOTTEN IDEAS FROM RAPID ADJUSTMENT FARM WITH RESPONDENT BEING IN SIMILAR GROUPS WITH RAPID ADJUSTMENT FARMER (COUNTY C)

	Getting Ideas From Rapid Adjustment Farmer	
	Yes n	No n
Not in Group	0	5
In one group with R. A. Farmer	3	0
In two or more groups with R.A. Farmer	9	1
Total	12	6

$\chi^2 = 13.95$ d.f. = 2 $p < .001$
Cramer's V = 0.830

TABLE 47

RELATIONSHIP OF RESPONDENT FARMER SEEING RAPID ADJUSTMENT FARM PRACTICES PRACTICAL WITH RESPONDENT BEING IN SIMILAR GROUP WITH RAPID ADJUSTMENT FARMER (COUNTY C)

	Seeing Ideas As		
	Not Practical	Maybe Practical	Practical
	n	n	n
Not in Group	3	1	1
In one group with R. A. Farmer	0	0	3
In two or more groups with R. A. Farmer	0	1	9
Total	3	2	13

$\chi^2 = 11.15$ d.f. = 4 $p < .03$
Cramer's V = 0.556

From Tables 46 and 47 we see that there is a higher correlation between respondent being in similar groups with Rapid Adjustment Farmer and them seeing ideas as practical or having gotten ideas from the Rapid Adjustment Farm.

In Table 47 we can see that all of those in one or more groups with the Rapid Adjustment Farmer see the practices carried out on the Rapid Adjustment Farm as being practical with one thinking that they might be practical. This is compared with three of those not in similar groups thinking the practices as not practical.

In Table 46 it is noticed that only one of those that did not get ideas from the Rapid Adjustment Farm was in similar groups with the Rapid Adjustment Farmer while 12 or 100 percent of the ones having

gotten ideas from the Rapid Adjustment Farm were in one or more similar groups with the Rapid Adjustment Farmer. Cramer's V = 0.88 for Table 46 shows the highest correlation of any of the variables that were compared. The high correlation between being in groups with the Rapid Adjustment Farmer and seeing the practical as practical and getting ideas from the Rapid Adjustment Farm could be expected from the literature. Rogers states that "The thinking of members of social groups both formal and informal play an important role in the role of adoption of ideas by individuals within the group."[1] This means that the Rapid Adjustment Farmer can exert more influence through a group to which he belongs since the thinking of that group tends to strengthen the value of the ideas. This is, of course, combined with the variable of opinion leadership and friendship.

Adoption levels and characteristics probably play an important role in this relationship also since early adopters tend to join more formal groups.[2]

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[1]Rogers and Shoemaker, op. cit., p. 287.

[2]Everett M. Rogers. Diffusion of Innovation. New York: The Free Press of Glencoe, p. 176. 1962

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

This chapter will summarize the preceding chapters, list conclusions and recommendations for the study and offer some suggestions for further study.

Background and Setting

During the past six years the Ohio Cooperative Extension Service, in cooperation with the Tennessee Valley Authority and local supporting agencies, has sponsored a Rapid Adjustment Farm Program in Southeast Ohio. While the purposes of the program are manifold, this study is primarily concerned with the relative effectiveness of the Rapid Adjustment Farm in Southeast Ohio as a means or device for transferring technology and management practices to other farmers in the community and to identify the variables related to this transfer. Another outcome of the study was the identification of characteristics of the farmers who are observing the Rapid Adjustment Program.

Statement of the Problem

The major problem to be investigated in this study was: Is the Rapid Adjustment Farm Program effective as a means of diffusing technology and management practices to other farmers in the community?

Need for the Study

Since the Rapid Adjustment Farm Program came into existence in

Ohio in 1968, it has been shown to be an effective tool in helping the individual farmer on the program move from a state of low income caused by poor management practices to a higher income with a much improved farm enterprise. No research has been done in Ohio to show how much spinoff or diffusion of technology and management practices offurs from the Rapid Adjustment Farm to other farms in the community.

The Rapid Adjustment Farm may be thought of as a large scale demonstrational program, and demonstrations have long been recognized as a teaching method to encourage the adoption of farm innovations. However, little is actually known about the effectiveness of demonstrations in securing adoption and in changing farmers' attitudes.

The need can be summarized by the following statements: 1. Need to determine if spinoff of technology and management practices is occurring so that future direction can be given to the program for expansion and funding; 2. Need to determine characteristics of the Rapid Adjustment Farm or Farm Cooperators which would best help in the diffusion of technology and management practices to other farmers.

Specific Objectives

1. What is the percentage of adoption of specific practices, applied on the Rapid Adjustment Farm, on other farms in the community?
2. What is the relationship of the percentage of adoption with the respondent's awareness and knowledge of the Rapid Adjustment Farm?
3. What is the relationship between the percentage of adoption of the specific practice applied on the Rapid Adjustment Farm and the following variables among the Rapid Adjustment Farms used in the

study.

a. Rapid Adjustment Farm observability from a community-traveled highway.

b. Rapid Adjustment Farmer being an opinion leader in the community (as seen by other farmers).

c. The amount of mass media coverage of the Rapid Adjustment Farm and the number of tours and educational events held there.

4. What is the relationship between the percentage of adoption of specific practices applied on the Rapid Adjustment Farm and the following variables among respondent farmers?

a. Proximity of respondent to Rapid Adjustment Farm.

b. Respondent having been on the Rapid Adjustment Farm.

c. Number of community groups to which respondent and Rapid Adjustment Farmer both belong.

d. Respondent being a personal friend of Rapid Adjustment Farmer.

e. Size and scope of respondent farm similar to Rapid Adjustment Farm.

5. What is the relationship between respondent farmers viewing practices carried out on the Rapid Adjustment Farm as practical on their own farms and the following variables?

a. Rapid Adjustment Farmer being an opinion leader in the community (as seen by other farmers).

b. Proximity of respondent to Rapid Adjustment Farm.

c. Number of community groups to which respondent and Rapid

Adjustment Farmer both belong.

d. Respondent being a personal friend of Rapid Adjustment Farmer.

e. Size and scope of farm operation of respondent farm similar to Rapid Adjustment Farm.

f. Respondent having been on Rapid Adjustment Farm.

g. Observability of Rapid Adjustment Farm from a community-traveled highway.

6. What is the relationship between respondent having gotten ideas from the Rapid Adjustment Farm and the following variables?

a. Rapid Adjustment Farmer being an opinion leader in the community (as seen by other farmers).

b. Proximity of respondent to Rapid Adjustment Farm.

c. Number of community groups to which respondent and Rapid Adjustment Farmer both belong.

d. Respondent being a personal friend of Rapid Adjustment Farmer.

e. Size and scope of farm operation of respondent farm similar to Rapid Adjustment Farm.

f. Respondent having been on Rapid Adjustment Farm.

g. Observability of Rapid Adjustment Farm from a community-traveled highway.

Methodology

Since there were no data collected prior to the initiation of the Rapid Adjustment Farm Program concerning the period of adoption of practices by other farmers in the community, it was decided that the basic design of the research should be descriptive survey. The

various variables were secured from the Rapid Adjustment Farmers, County Extension Agents and the Respondent Farmers.

The specific practices used in the study were selected from all of the practices and recommendations put into effect on the Rapid Adjustment Farm. These practices were secured from County Agents, Area Agents and State Specialists.

Three Rapid Adjustment Farms of similar enterprise tenure on the program and geographic area were selected from the over 20 Rapid Adjustment Farms. The three farms were dairy farms in Southeast Ohio.

The population was all of the dairy farms in these three counties. A complete listing of dairy farms was prepared from the Brucellosis Ring Test report. The population consisted of 55 dairy farmers in County C, 150 dairy farms in County B and 159 dairy farms in County A. A stratified random sample of thirty (30) was drawn from each county list by the method of random numbers. Extra farms were also selected by the method of random number to be used in case an interview with the original thirty was not possible or if the dairymen had since quit dairy farming.

An interview schedule was developed to obtain the necessary independent and dependent variables from the respondent farmers. Section I was designed to determine whether the respondent farmer viewed the Rapid Adjustment Farmer as an opinion leader. Section II was used to obtain the dependent variable of practices adopted and

year of adoption. In Section III questions were concerned with the respondent's knowledge and relationship with the Rapid Adjustment Farmer. In Section III the independent variables about the respondent and his farming operation were obtained.

The interview schedule was pretested in June of 1974 by the researcher with two dairy farms in each of the three counties. After studying the responses several changes were made that clarified some of the questions.

The data for the study were collected in August of 1974. An interviewer was hired in each of the three counties to do the interviewing. During the last of July a training session was held with the interviewers. Before the interviewers did their actual 30 interviews, each one conducted a practice interview with a farm in the county not on their list.

After all interview schedules had been completed, the data were transfered to code sheets and then punched on data processing cards for analysis. The Statistical Package for the Social Sciences (SPSS) was the computer program used.

Percentage distribution and mean weighted scores were the major techniques used in analysis of the data. Cramer's V was the statistical method used to show the degree of relationship or correlation between variables. The chi-square test was chosen as the statistical tool for examining the significance of relationship between variables.

Major Findings

The results of this study showed that some variables shown in

previous research to influence adoption of practices or knowledge of the Rapid Adjustment Farm had little measurable effect on the percentage of adoption. Some variables, however, did show a significant relationship. The major findings will be looked at in the order of the objectives of the study.

Objective. What is the percent of adoption of specific practices, applied on the Rapid Adjustment Farm, on other farms in the community?

The percent of adoption of specific practices varied considerably, depending upon the practice, with the highest being 32 percent having adopted the practice of planting alfalfa, to the lowest of six percent for the use of urea in corn silage. Only two practices, that of planting alfalfa for hay or pasture and keeping a complete farm account book have been adopted by more than 75 percent of the respondent dairy farmers. Six practices fall below the 25 percent adoption level; and of these, keeping DHIA or other production records and band seeding with press wheels are among the practices that have been recommended for several years. When looking at the percentage of adoption by individual counties, we found that there was considerable difference between counties. County C had the highest percent of adoption for every practice and County A had the lowest percent adoption of each practice.

When we considered those practices having been adopted since 1970 (after the initiation of the Rapid Adjustment Farm Program), we

found that those practices with the highest adoption percentage since 1970 were these: No-till corn, forage testing and feed analysis, urea in corn silage, and band seeding with press-wheels.

When the number of practices adopted by the individual farmers were totaled, it was found that six of the farmers had not adopted any of the practices while three had adopted 14 of the 17 practices. The mean of the number of practices adopted was 6.9. When these values were divided into adoption level categories of the low quarter, middle half and high quarter, it was found that the counties varied considerably with the number in each category. County C had 64 percent of the high adoption level category compared to five percent in County A and 63 percent of the low adoption level category farmers.

Objective. What is the relationship of percentage of adoption with respondent awareness and knowledge of the Rapid Adjustment Farm?

Fifty-one of the farmers interviewed knew about the Rapid Adjustment Program. It was found that those who are adopting more of the practices are more knowledgeable about the Rapid Adjustment Farm. Seventy-seven percent of those in the high adoption level category knew about the Rapid Adjustment Farm Program compared to 29 percent of those in the low adoption level category. It was found that about the same number knew about the program in each county with County A having 15 who knew of the program compared to 18 in the other two counties.

Objective. What is the relationship between percentage of adoption of the practices applied on the Rapid Adjustment Farm and variables among the Rapid Adjustment Farms used in the study?

When opinion leadership of the Rapid Adjustment Farmer was studied, it was found that this varied considerably by county. While 20 percent of the entire sample viewed the Rapid Adjustment Farmer as an opinion leader, only two farmers thought of him as an opinion leader in County A compared to four in County B and 12 in County C. Over 40 percent of those in the high adoption level category think of the Rapid Adjustment Farmer as an opinion leader while only four percent in the low adoption level category viewed him as an opinion leader.

Although the observability of the Rapid Adjustment Farm (as measured by the frequency that respondent drove by the farm) varied between counties, this observability was not significantly related to the adoption level category.

The amount of mass media coverage of the Rapid Adjustment Farm also varied between counties, but did not show a relationship between the amount of coverage and awareness of the Rapid Adjustment Farm.

Objective. What is the relationship between the percentage of adoption of practices applied on the Rapid Adjustment Farm and variables among farmers?

Those farmers who are in similar community groups with the Rapid Adjustment Farmer tend to be in the high adoption level category. Sixty-five percent of those in the high adoption level category are in similar community or county groups with the Rapid Adjustment Farmer, while only 14 percent of those in the low adoption level category are in similar groups. This relationship is significant and is supported by most diffusion literature.

The adoption level category is also significantly related to the number of cows of the respondent. The more cows the respondent has, the more likely he is to be in the high adoption level category. This relationship has a Cramer's V of .39 which is significant at the .001 level. Grade of milk produced also is significantly related to the adoption level category with none of the Grade A producers being in the low adoption level category.

The variables of distance respondent is from the Rapid Adjustment Farm, whether the respondent has been on the farm or not, and whether he is a personal friend of Rapid Adjustment Farmer were not significantly related to the adoption level category. The age of the respondent farmer was not significantly related to any of the variables in the study.

Objective. What is the relationship between respondent farmer's viewing practices carried out on the Rapid Adjustment Farm as practical on his own farm and other variables?

Since the Rapid Adjustment Farm Program is only six years old, perhaps the level of adoption is not the best method of determining whether other farmers are gaining information from the Rapid Adjustment Farm. For this reason, the respondents were asked if they thought that the practices carried out on the Rapid Adjustment Farm were practical for their farms, and this was taken as the dependent variable and compared with independent variables.

When the respondent's view of the practicality of the practices was compared by county, it was found to have a significant relationship with 13 of the 13 farmers in County C thinking the practices were practical compared to four of the 15 farmers in County A.

Of those farmers who said that they were friends of the Rapid Adjustment Farmer, 70 percent see the practices as practical compared to 28 percent of the non-friends. This relationship was a Cramer's V of .46 which is significant at the .01 level. When this same relationship was viewed by individual counties, it was found that the highest percentage viewing the practices as practical was in County C which had 13 farmers or 92 percent of the friends viewing the practices as practical.

The relationship of the respondent having been on the Rapid Adjustment Farm and thinking the practices are practical was also significant, but was not large with a Cramer's V of only .23. In County C 92 percent of those having been on the Rapid Adjustment Farm view the practices as practical compared to 38 percent and 61 percent in County A and County B respectively.

Of the factors of size and scope of the respondent's farm, only the size in number of acres and grade of milk produced had a significant relationship with respondent viewing the practices as practical. Those farmers with larger farms and producing Grade A milk were more inclined to view the practices as practical.

The variables of adoption level category, opinion leadership of Rapid Adjustment Farmer, distance of respondent from Rapid Adjustment Farm, observability of Rapid Adjustment Farm, number of dairy cows of respondent and age of respondent were not significantly related to whether the respondent viewed the practices as practical. Adoption literature would suggest that there would be a significant relationship.

Objective. What is the relationship between respondent having gotten ideas from the Rapid Adjustment Farm and other variables?

Another attempt to determine if the respondents were gaining information was to ask them if they had gotten any information from the Rapid Adjustment Farm. This was then taken as the dependent variable and compared with the independent variables.

Twenty-five farmers said that they had received ideas from the Rapid Adjustment Farm. Eight of those 25 ideas dealt with the fertilization of crop and pasture fields. Agronomy practices combined accounted for 80 percent of all ideas received. Twelve of the 18 farmers who knew the Rapid Adjustment Farm in County C had received ideas while only eight had in County A and five in County B.

Those receiving ideas from the Rapid Adjustment Farm were significantly related to those viewing the Rapid Adjustment Farmer

as an opinion leader. Of those viewing the Rapid Adjustment Farmer as an opinion leader, 77 percent got ideas compared to 40 percent for those who do not see him as an opinion leader.

Those respondents who had been on the farm had received more ideas than those who had not been. Over two-thirds of those who had been on the farm responded that they had received ideas from the farm. This is compared to 22 percent of those not having been on the farm receiving ideas.

Friendship was not shown to be significantly related to having received ideas when compared in combined counties. However, in County C, 100 percent of the Rapid Adjustment Farmer's friends had received ideas while none of the non-friends had received ideas.

The variable of adoption level, frequency of driving by, and all of the variables of size and scope of the respondent's farm were not found to be significantly related to whether the respondent had gotten ideas from the Rapid Adjustment Farm. This lack of significant relationship is not supported by the literature.

Similar Groups. Since there were no farmers in similar groups with the Rapid Adjustment Farmer in County A and very few in County B, these variables could not be compared by combined county. However, in County C, 13 of the 18 farmers who knew the Rapid Adjustment Farmer were in one or more similar groups with him.

In County C there is a high correlation between the respondent being in similar groups with the Rapid Adjustment Farmer and them seeing ideas as practical or having gotten ideas from the Rapid

Adjustment Farm.

All but one of those in similar groups with the Rapid Adjustment Farmer saw the practices carried out there as practical compared to only one of those not in a similar group. This relationship is significant at the .03 level and has a Cramer's V of .556.

All of the farmers in similar groups with the Rapid Adjustment Farmer responded that they had received ideas from the Rapid Adjustment Farm compared to only one of those not in a similar group having received ideas. This relationship is significant at the .01 level and has a Cramer's V of .88 and shows the highest degree of relationship of any of the variables compared.

This high degree of relationship between being in similar groups and having received ideas or thinking that the practices are practical is supported by diffusion literature.

Conclusions

The conclusions of this study were developed from data provided by the Respondent Farmers and the Rapid Adjustment Farmers and from the review of literature.

1. The Rapid Adjustment Farm Program is effective in helping diffusion to occur if there is a great deal of interaction between the Rapid Adjustment Farmer and other farmers in the community.

2. A majority of the dairy farmers in the three counties knew about the Rapid Adjustment Farm Program.

3. While half of the farmers who knew of the Rapid Adjustment Farm had received ideas from it, this was not a function of being a Rapid Adjustment Farm alone since the number receiving ideas varied greatly among counties.

4. Friends of the Rapid Adjustment Farmer are more likely to view the practices carried out on the Rapid Adjustment Farm as being practical on their own farms.

5. More of the farmers who have visited the Rapid Adjustment Farm view the practices carried out there as being practical and received ideas from the farm than those farmers who have not visited the farm.

6. Farmers who viewed the Rapid Adjustment Farmer as an opinion leader are more inclined to have received ideas from the program than farmers who do not view him as an opinion leader.

7. Those farmers in similar groups with the Rapid Adjustment Farmer get more ideas from the program and are more inclined to view the practices carried out there as practical than those farmers who

are not in similar groups with the Rapid Adjustment Farmer.

8. Most of the ideas received by farmers were agronomic in nature and dealt primarily with fertilization and spray programs.

9. Farmers of all adoption levels have visited the Rapid Adjustment Farms, while those in the high adoption level category are more inclined to visit the farm.

10. Those farmers with large farms and producing Grade A milk are more inclined to view the practices of the Rapid Adjustment Farm as practical than those farmers with small farms producing Grade B milk.

11. While the average number of community or county farm groups that the Rapid Adjustment Farmer participates in was three, this was not because he was a Rapid Adjustment Farmer.

12. The Rapid Adjustment Farmer on the average is younger, operates more acres, has more dairy cows and replacement heifers than the average dairy farmer in the three counties.

13. Most of the practices that have been adopted by a large percentage of the dairy farmers are older and long-recommended practices and the adoption percentage does not seem to be related to the Rapid Adjustment Farm Program.

14. The average dairy farmer had adopted less than half of the practices conducted on the Rapid Adjustment Program.

15. Some variables which previous research and literature suggest would affect the amount of diffusion occurring do not show a significant

relationship to farmers seeing practices as practical or getting ideas. These variables are (a) age of respondent farmer, (b) distance of respondent from Rapid Adjustment Farm, (c) observability of Rapid Adjustment Farm, (d) number of cows of the respondent, and (e) adoption level of respondent.

The conclusions that personal characteristics of the Rapid Adjustment Farmer, his relationship with other individuals and organizations, along with the other farmer's having been on the farm are the primary factors influencing the rate of diffusion are supported by the Hartman and Brown study in Pennsylvania.[1]

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[1]Hartman and Brown, op. cit.

Recommendations

Since one of the primary objectives in the Rapid Adjustment Program as perceived by the Land Grant College staffs is to use the Rapid Adjustment Farm as a tool for diffusing technology and management practices to other farmers in the community,[2] this researcher offers the following recommendations. These recommendations were made on the basis of the findings of the study, in terms of the conclusions reached from the study and from the experience of the writer.

1. Additional criteria should be used in selection of the Rapid Adjustment Farmer to select a farm cooperator with personal characteristics to enhance diffusion of the technology.
   a. A farmer looked to for advice in the community.
   b. A farmer who makes friends easily.
   c. A farmer who is active in community and county groups.
2. The county agent should make considerable effort to get the Rapid Adjustment Farmer involved in community and county organizations.
3. All means possible should be used to get other farmers to the farm to see the practices being demonstrated there.
4. A special effort needs to be made to get the farmers in the lower adoption level category acquainted with the program.
5. Practices other than the agronomic practices, such as

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[2]Russ, op. cit.

production testing, records, dairy facilities, and dairy herd management, need more emphasis on the Rapid Adjustment Farms.

6. Recommendations for further study.

The following areas should be pursued as topics for further study related to this study.

a. This study should be conducted on a larger scale with more Rapid Adjustment farms to see if the results agree with the original three counties involved.

b. A similar study should be conducted after a longer time period has elapsed so that more diffusion could have occurred.

c. A study is needed that involves a pre- and post-interview so that a more accurate measurement of diffusion can be obtained.

d. A study should include more in-depth questioning of respondent's attitude of the Rapid Adjustment Farm.

APPENDIX A

TABLE 48

MASS MEDIA COVERAGE OF RAPID ADJUSTMENT FARM BY INDIVIDUAL COUNTY

Type of Media	Number County A	County B	County C
Radio programs about RAF programs	1	75	45
Radio programs with RA Farmer on program	0	2	0
Television programs about RAF programs	1	4	5
Television programs with RA Farmer on Program	0	2	1
Newspaper Articles	10	45	7
Newspaper articles with pictures	1	15	2
*Manazine article about RAF	0	1	2
Extension Newsletter containing information about RAF	2	10	10
Total Number of Mass Media Coverage	14	135	69

*The magazines were Country Living and Farm Journal for County B and Ohio Farmer for County C.

TABLE 49

TOURS AND EDUCATIONAL EVENTS HELD ON RAPID ADJUSTMENT FARM

	Number County A	County B	County C
Total number of tours and educational events	15	30	12
Tours and/or educational events for dairy farmers to attend	10	15	8
Attendance at the tours of dairy farmers	50	50	30

TABLE 50

RELATIONSHIP OF RESPONDENT LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO SIZE OF RESPONDENT FARM

Size of Respondent's Farm	Total N	Got Ideas From Rapid Adjustment Farm Yes n	Yes %	No n	No %
0-100	7	2	28.6	5	71.4
101-200	10	5	50.0	5	50.0
201-300	14	7	50.0	7	50.0
301-400	12	6	50.0	6	50.0
401-850	9	7	77.8	2	22.2
Total	52	27		25	

$\chi^2 = 3.09$ d.f. = 4 n.s.
Cramer's V = 0.28

TABLE 51

RELATIONSHIP OF RESPONDENT LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO NUMBER OF DAIRY COWS RESPONDENT HAS

Number of Cows	Total N	Got Ideas From Rapid Adjustment Farmer Yes n	Yes %	No n	No %
1-10	4	1	25.0	3	75.0
11-20	11	6	54.5	5	45.5
21-35	19	9	47.4	10	52.6
36-50	12	6	50.0	6	50.0
51-99	6	5	83.3	1	16.7
Total	52	27		25	

$\chi^2 = 3.738$ d.f. = 4 n.s.
Cramer's V = 0.27

TABLE 52

RELATIONSHIP OF RESPONDENT LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO AGE OF RESPONDENT FARMER

Age of Respondent	Total N	Got Ideas From Rapid Adjustment Farm Yes n	Yes %	No n	No %
15-30	5	4	80.0	1	20.0
31-45	20	12	60.0	8	40.0
46-60	22	10	45.5	12	54.5
61-76	5	1	20.0	4	80.0
Total	52	27		25	

$\chi^2 = 4.51$ d.f. = 3 n.s.
Cramer's V = 0.294

TABLE 53

RELATIONSHIP OF RESPONDENT LEARNING IDEAS FROM THE RAPID ADJUSTMENT FARM TO GRADE OF MILK HE PRODUCES

Grade of Milk Produced	Total N	Got Ideas From Rapid Adjustment Farm Yes n	Yes %	No n	No %
Grade A	48	25	52.1	23	47.9
Grade B	4	2	50.0	2	50.0
Total	52	27		25	

$\chi^2 = 0.194$ d.f. = 1 n.s.
Phi = 0.06

APPENDIX B

Schedule # _____

Interviewer_____

INTERVIEW SCHEDULE

PART I (Opinion Leadership)

Interviewer: We are attempting to find out where farmers get information and to identify some farmers in the community that sometime help other farmers obtain information.

Please answer the following questions with the name of one or more persons with whom you have had direct contact. If you can think of no one please feel free to say so.

1. Who would you say keeps up with the latest in crop production techniques and can be trusted to know what will work and won't work?

(1) Name _____ Occupation_____
(2) " _____ " _____
(3) " _____ " _____

2. Who would you say keeps up with the latest in dairy production techniques and can be trusted to know what will work and what won't work?

(1) Name_____ Occupation_____
(2) " _____ " _____
(3) " _____ " _____

3. With what farmers have you talked most often in the past year about your farm operations?

(1) Name_____ (4) Name_____
(2) " _____ (5) " _____
(3) " _____

4. With what farmer or farmers would you talk with if you wanted to discuss:

a. Hay production — Name_____ " _____

b. Pasture management — Name_____ "

c. Milk production — Name_____ " _____

d. Expansion of livestock facilities — Name_____ " _____

e. Feed and forage handling — Name_____ " _____

5. What farmers in the county are the first to try new ideas?

(1) Name_____ (4) Name_____
(2) " _____ (5) " _____
(3) " _____

PART II (Adoption of Practices)

In order for us to better understand how farmers are feeling about certain practices would you please respond to the following practices with one of the responses on the card. If you wish to you can just say the number.

1. Take soil test of pasture fields. 1/2/3/4/5/6
   Year first used or tried _____

2. Take complete soil tests for each pasture field at least once every three years. 1/2/3/4/5/6
   Year first used or tried _____

3. Take soil test of crop fields. 1/2/3/4/5/6
   Year first used or tried _____

4. Take a complete soil test for each crop field at least once ever three years. 1/2/3/4/5/6
   Year first used or tried _____

5. Fertilize hay and legumes each year. 1/2/3/4/5/6
   Year first used or tried _____

6. Use of forage testing testing or feed analysis. 1/2/3/4/5/6
   Year first used or tried _____

7. Band seeding with press wheels of grass and legumes. 1/2/3/4/5/6
   Year first used or tried _____

8. Planting alfalfa for hay or pasture. 1/2/3/4/5/6
   Year first used or tried _____

9. Sowing alfalfa without a nurse or companion crop. 1/2/3/4/5/6
   Year first used or tried _____

10. Sowing alfalfa without grass mixed with it. 1/2/3/4/5/6
    Year first used or tried _____

11. Keeping D.H.I.A. or owner sampler production records for each cow. 1/2/3/4/5/6
    Year first used or tried _____

12. Keeping a complete farm account book. 1/2/3/4/5/6
    Year first used or tried _____

13. Feeding individual cows according to their milk Production. 1/2/3/4/5/6
    Year first used or tried _____

14. Use of artificial insemination on some or all of the dairy herd. 1/2/3/4/5/6
    Year first used or tried _____

15. Use of a high silage ration feeding program.
(More than ½ of the roughage coming from silage) 1 / 2 / 3 / 4 / 5 / 6
Year first used or tried _____

16. Do you raise corn for grain? Yes _____ No _____

17. Do you raise corn for silage? Yes _____ No _____

18. Use of urea in corn silage. 1 / 2 / 3 / 4 / 5 / 6
Year first used or tried _____

19. Planting corn without plowing (No till). 1 / 2 / 3 / 4 / 5 / 6
Year first used or tried _____

PART III (Knowledge of Rapid Adjustment Farm)

Interviewer: We are attempting to learn of other farmers thoughts about the Rapid Adjustment Farm Program and we need to have you answer the following questions.

1. Are you aware of the Dairy Rapid Adjustment Farm in this county? Yes___No____

1a If no ask if they know the Rapid Adjustment Farmer by giving his name. Yes__No__

If No to 1 and 1a ask only question 2 and no more.

2. Are you aware of other Rapid Adjustment Farms? Yes____ No.____
If yes who? _____

3. Who is the Rapid Adjustment Farmer in this county? Name_____
Don't know him._____

4. Are you a personal friend of the Rapid Adjustment Farmer? Yes____ No____

5. Are you in any of the same community or county group as he is? Yes____No____
If yes how many and list some: (1)_____
(2)_____(3)_____

6. Have you been on this Rapid Adjustment Farm? Yes____ No____

7. Are there any ideas that you have gotten from the Rapid Adjustment Farm Program? Yes ____ No____

7a What are some of these ideas? _____
_____

8. How often do you drive by the Rapid Adjustment Farm? ____Daily ____Weekly ____Monthly ____Less often.

9. Are the practices carried out on the Rapid Adjustment Farm practical for your farm? Yes____ No____ Maybe____

(For interviewer to determine by map)

10. How far is respondent farm from the Rapid Adjustment Farm?_____

PART IV Base Information on Respondent Farm and Respondent Farmer)

Age_____Size of total farm operated in acres_____(Include rented, leased and owned.)

Number of dairy cows in production and dry._____

Number of dairy heifers not yet in milk. _____

Number of other livestock. _____Beef breeding _____Beef feeder
_____Poultry _____Sheep _____Swine sow _____Swine feeders

Grade of milk produced: A_____ B_____

Please respond with one of the following:

1. Haven't heard of the practice.
2. Have heard of the practice but haven't thought about using it.
3. Think it might be a good practice but haven't tried it.
4. Have tried it one or two times.
5. Use the practice all or most of the time.
6. Did use the practice but don't now.

This card was given to the respondent for his use while answering Section II of the interview schedule.

Cooperative Extension Service

NOBLE COUNTY

Courthouse
Caldwell, Ohio 43724
Telephone: 614-732-2741

COLLEGE OF AGRICULTURE AND HOME ECONOMICS OF THE OHIO STATE UNIVERSITY, THE UNITED STATES DEPARTMENT OF AGRICULTURE AND NOBLE COUNTY COMMISSIONERS COOPERATING

Dear

I am currently conductinn a research study for the Ohio State University, the Ohio Cooperative Extension Service and the Ohio Resource and Develonment Center.

This study is attempting to determine what practices farmers are usinn and how farmers share information among themselves.

You have been selected to participate in the study. In a few days an interviewer will call upon you to let you answer a few questions. It should take only a very few minutes. I can assure you that all information will be kept completely confidential and all sources of information will be anonymous. The help that you can lend in support of the project would be very much appreciated.

Thanks for your support and cooperation.

Sincerely,

County Extension Agent
Agriculture

Sincerely,

Kenneth Sineral
County Extension Agent
Agriculture

Cooperative Extension Service

2120 Fyffe Road
Columbus, Ohio
43210

AGRICULTURE/HOME ECONOMICS/NATURAL RESOURCES

August 1, 1974
Court House
Caldwell, Ohio 43724

To Whom It May Concern:

I would like to introduce to you Mrs. Dorothy Dierkes who is helping conduct a research study for the Ohio State University, the Ohio Cooperative Extension Service, and the Ohio Research and Development Center.

This study that Dorothy is helping to conduct is to determine what practices farmers are using and how farmers share information among themselves.

I will assure you that all information will be kept completely confidential and all sources of information will be anonymous.

Any help that you can lend in support of this project would be very much appreciated.

Thanks for your support and help.

Sincerely,

Kenneth Simeral
Instructor
Ohio State University

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